OWNER'S MANUAL

ECLERNET MANAGER

v2.14r21

ECLERNET MANAGER OWNER'S MANUAL

1. MENUS AND TOOLBAR 05

1.1. *File* Menu 05
1.2. *Edit* Menu 05
1.3. *View* Menu 08
1.4. *Help* Menu 09
1.5. The toolbar 09

2. APPLICATION WINDOWS 10

2.1. Available windows 10
2.2. Display modes: Graphic/Table 17

3. CONTEXT MENU: RIGHT MOUSE BUTTON 19

4. EclerNet PROJECT 22

4.1. Creating an EclerNet Project 23
4.2. Customizing an EclerNet Project 37

5. ECLERNET PROJECT CONTROLS AND INDICATORS 39

5.1. Reduced view 39
5.2. Detailed View 41
5.3. Types of control 46
5.3.1. Adjustment potentiometers 46
5.3.2. Channel *Fader* 47
5.3.3. Buttons 47
5.3.4. Selectors 47
5.3.5. Numerical values 47
5.4. Table of status monitoring and alarm icons 48

6. EclerNet COMPATIBLE DEVICES, part I: NPA and NZA series amplifiers 49

6.1. NPA and NZA series detailed view 49
6.1.1. NPA series detailed view 49
6.1.2. NZA series detailed view 53
6.2. INPUT 57
6.3. CROSSOVER 57
6.4. PARAMETRIC EQ 57
6.5. COMPRESSOR 59
6.6. DELAY 60
6.7. Copying and pasting settings between channels 60

7. EclerNet COMPATIBLE DEVICES, part II: MIMO88 digital matrix 61

7.1. MIMO88 introduction 61
7.2. 8x8 and 16x16 setups 62
7.3. MIMO88 device detailed view 65
7.4. MIMO88 general section 66
7.5. MIMO88 INPUTS section 71
7.5.1. INPUT 72
7.5.2. DELAY 73
7.5.3. PARAMETRIC EQ 73
7.5.4. GATE 74

7.5.5. COMPRESSOR 75
7.5.6. LEVEL 76
7.5.7. FREQUENCY SHIFTER 76
7.6. MIMO88 MATRIX section (I/O matrix) 77
7.6.1. INPUTS column 77
7.6.2. INPUTS-OUTPUTS crossing points 78
7.6.3. OUTPUTS row 79
7.6.4. Matrix Link Groups 80
7.7. MIMO88 OUTPUTS section 82
7.7.1. LEVEL 83
7.7.2. CROSSOVER 83
7.7.3. PARAMETRIC EQ 84
7.7.4. DELAY 85
7.7.5. LIMITER 85
7.8. MIMO88 PAGERS/DUCKERS section 86
7.8.1. Configuring a module as PAGER 86
7.8.2. Configuring a module as DUCKER 89
7.9. MIMO88 GPIs/GPOs section 91
7.10. MIMO88 REMOTES section 94
7.10.1. Configuring a WPTOUCH-type remote control 98
7.10.1.1. Configuring the WPTOUCH for operating with a Presets carousel 101
7.10.1.2. Configuring the WPTOUCH for operating with an Inputs carousel 108
7.10.2. Configuring a MPAGE16-type remote control 118
7.10.3. Configuring an ANALOG-type remote control 120
7.11. Carousel lists for MIMO88 125
7.12. MIMO88 EVENTS section 129
7.12.1. Analog events 132
7.12.2. Simple digital events 134
7.12.3. Compound digital events 139
7.12.4. DIGITAL DELAY 141
7.12.5. TIME SCHEDULER 143

8. EclerNet COMPATIBLE DEVICES, part III: MIMO88 CONFERENCE digital matrix 145

8.1. MIMO88 CONFERENCE introduction 145
8.2. MIMO88 CONFERENCE Firmware Update 146
8.3. INPUTS Section and FREQUENCY SHIFTER function 149
8.4. MATRIX Section 150
8.5. OUTPUTS Section 151
8.6. DUCKERS Section 152
8.7. AUTOMIXER Section 153
8.7.1. AUTOMIXER. NOMA or EXCLUSIVE automix modes 155
8.8. FEEDBACK KILLER Section 157

9. USER CONTROL PANELS (U.C.P.) 159

9.1. Introduction 159
9.2. Creating UCPs 160
9.3. Functions assignment in the UCP 163
9.4. Management of UCP from remote devices 170
9.5. EclerNet Manager "hidden" mode and direct access to projects and UCPs 173
9.6. Error Message from the web server service 176

The current version of EclerNet Manager (v2.14r21) includes many new features not found in previous versions, most notably compatibility with the new MIMO88 CONFERENCE (see paragraph 8 of this manual), especially designed for conference, automatic mixing of audio signals and feedback cancellation (audio feedback or Larsen effect).
We therefore encourage you to read this manual and to watch the video tutorials available on our YouTube channel for a complete learning of software application and hardware devices a complete EclerNet system can include and communicate with.

For more information:

- User manuals for hardware and firmware versions. Visit
  http://www.ecler.es/en/products/processors/mimo-88.html
  http://www.ecler.es/en/products/amplifiers/nza-series.html
  http://www.ecler.es/en/products/amplifiers/npa-series.html

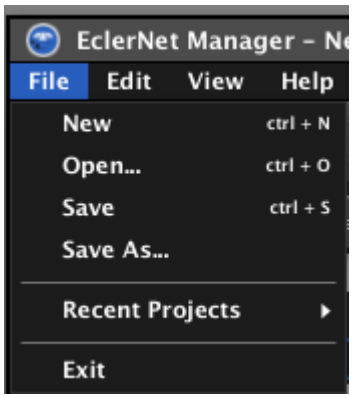
  and click on the **TECH FILES** tab

- EclerNet Manager Youtube channel:
  http://www.youtube.com/user/eclernetmanager

1. MENUS AND TOOLBAR

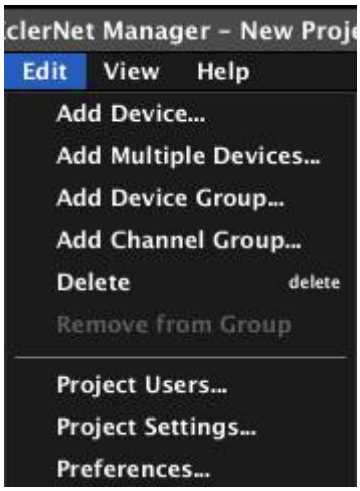
Following menus are available in the upper bar of the application window (matching keyboard shortcuts are given inside brackets):

1.1. *File* Menu



- *New* (ctrl + N): opens a new Project.
- *Open* (ctrl + O): opens a Project stored on a local hard disk or other data storage unit.
- *Save* (ctrl + S): saves the current Project on a local hard disk or other data storage unit.
- *Save As*: a dialog box lets you save the current Project with a different name and/or location.
- *Recent Projects*: displays a list of recently opened Projects and allows you to directly open one of them.
- *Exit*: closes the program.

1.2. *Edit* Menu

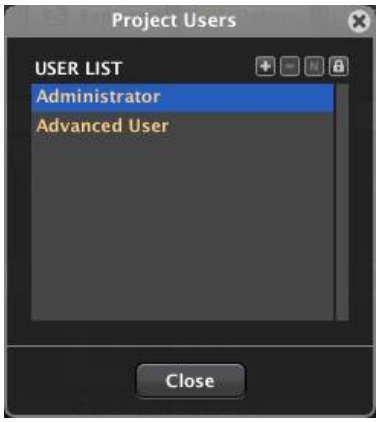


- *Add Device*: adds a new device to the current Project.
  Parameters:
  - *Device Type*: selects in a list of compatible EclerNet device types the one to add.
  - *Device Name*: allows the new device to be named.
- *Add Multiple Devices*: adds several new devices to the current Project.
  Parameters:
  - *Device Type*: selects in a list of compatible EclerNet device types the one to add.
  - *Number*: number of devices to add.
- *Add Device Group*: opens a dialog box to create a new device group in the current Project.
  Parameters:
  - *Group Name*: allows the new device group to be named.

  ***Note**: you can create a group within a group (see section: **4. EclerNet PROJECT**)*
- *Add Channel Group*: opens a dialog box to create a new channel group in the current Project.
  Parameters:
  - *Group Name*: allows the new channel group to be named.

  ***Note**: you can create a group within a group (see section: **4. EclerNet PROJECT**)*
- *Delete* (Delete key): allows a device, channel, device group or channel group to be deleted from the Project. In order to remove a component, select it first (by mouse or keyboard) in any application view.
- *Remove from Group*: allows a device to be removed from a device group or a channel to be removed from a channel group. In order to remove a component, select it first (by mouse or keyboard) in any application view.

- *Project Users:* opens the configuration window for users and passwords (also accessible by clicking on the *Users* button in the toolbar).

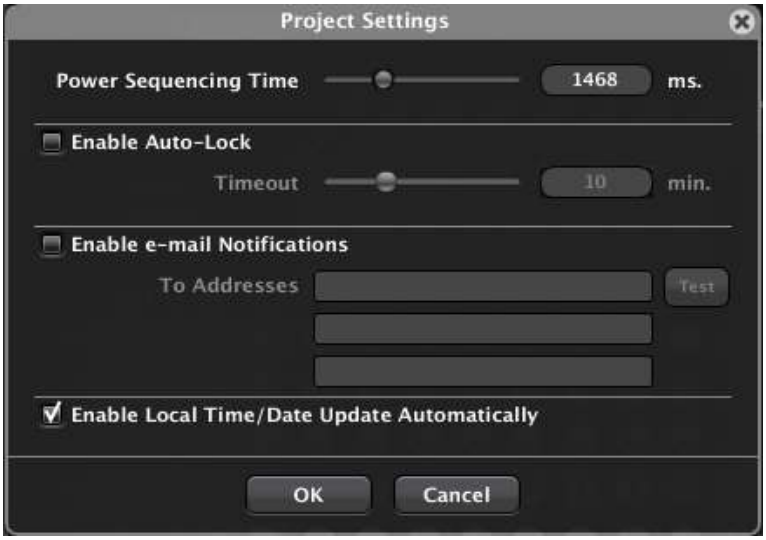


From this window you can create new generic users, delete or rename any existing ones and change passwords for them and for the two default user profiles: **Administrator** and **Advanced User**, which are blank by default. If passwords are assigned to one or another user in a project, when trying to perform certain operations a password is requested in order to be identified as Administrator or Advanced User. Thus, the project remains protected from any structural changes or operations made by users without such privileges that could jeopardize the normal operation of the system.
The following table summarizes the privileges of the three possible user profiles:

	Administrator	Advanced User	Generic User
Auto-Lock	YES	YES	NO
Lock	YES	YES	NO
Design	YES	NO	NO
Save	YES	NO	NO
Save As	YES	NO	NO
New	YES	NO	NO
Load	YES	YES	NO
Exit	YES	YES	NO

As indicated, the Administrator has the highest rank in the privilege hierarchy, followed by the Advanced User and generic users. All actions that may involve structural changes in a project are enabled in DESIGN mode only, accessible to an Administrator only (add, delete or rename devices, drag devices "online" in a project, save the project, open a new project, save "presets", create carousel or event lists, add or edit remote controls, etc.). All these operations are disabled in the different menus and controls when EclerNet Manager is in DEPLOY mode (everyday use mode) (see section **1.5. The toolbar**), the only mode all other users (advanced and generic) have access to.

- *Project Settings:* opens the project general settings window (also accessible by clicking on the *Settings* button in the toolbar).



- *Power Sequencing Time* (0 to 5000 milliseconds): sets the power sequence time delay between a device and following devices involved in the Project.
- *Enable Auto-Lock and Timeout (1 to 30 minutes)*: when you have assigned a password to anyone of the high-level users (Administrator and/or Advanced User), you may enter the protect mode of the project, either by pressing the *Lock* toolbar button, or once "auto-lock" (automatic activation of the protect mode) time out has passed without user activity on the Project when the option *Enable Auto-Lock* is checked. To re-access the DEPLOY or DESIGN mode, you must enter the password respectively assigned to the Administrator or Advanced User.
- *Enable e-mail Notifications:* enables/disables sending emails from the specified address (*From Address*) and to the three possible specified destinations (*To Addresses*) in the dialog box. Includes a "Test" button to test this function operation (when pressed, a test e-mail is sent).
- *Enable Local Time/Date Update Automatically:* allows the unit internal clock to automatically sync with Windows time changes, an especially useful function for daylight saving time.

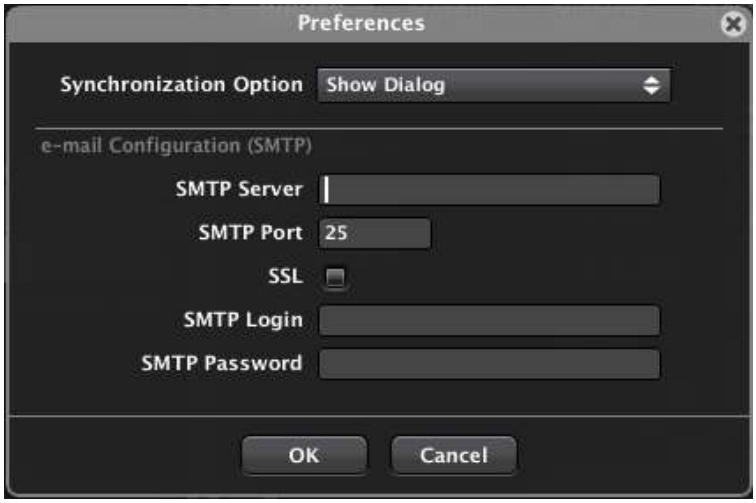
***Notes**: (about e-mail sending)*

- *The e-mails sent include the project name in their subject field.*
- *To be able to send these e-mails, SMTP settings for the PC have to be done in the Edit / Preferences menu.*

There is a notice in the following cases:

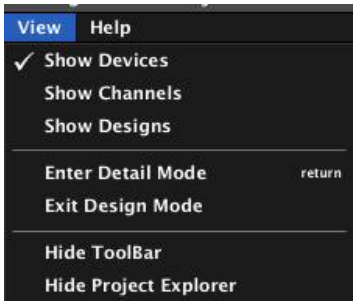
- *Alarms*
- *System Fault: for example, hardware failure (fuse, power supply...) of NPA series amplifiers.*
- *Coded errors (hardware, firmware, DSP...)*
- *RTC (Real Time Clock) reset*
- *When a device is disconnected from Ethernet.*
- *When you load a Project if some device is missing.*
- *For an event designed for this purpose (available in future versions).*

- *Preferences*: opens general preferences window for the application.



  - *Synchronization Option*: defines how a hardware device and its virtual counterpart in the application will be synchronized when entering the *online* mode. The options are:
    - *Get State from Physical Device*: the Project is updated with data from hardware devices at connection time.
    - *Send State to Physical Device*: hardware devices are updated with current Project data at connection time.
    - *Show Dialog*: a dialog box appears each time to choose between option 1 and 2.
  - *e-mail Configuration (SMTP): configuration of the computer SMTP parameters to enable sending e-mail notification of alarms, errors and certain events registered in the application. Parameters:* SMTP Server, SMTP Port, SMTP Login, SMTP Password. If the SSL box is checked, it enables the use of mail accounts with ***Secure Sockets Layer*** protocol (gmail, hotmail, yahoo, etc.).

1.3. *View* Menu

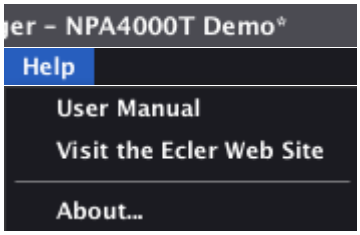


- *Show Devices*: shows the devices view in the "*Project Explorer*", "*Groups from Device Container*" and "*Members from Device Group:*" windows.
- *Show Channels*: shows the Channels view in the "*Project Explorer*", "*Groups from Channel Container*" and "*Members from Channel Group:*" windows.
- *Show User Control Panels*: shows the view of the remote control screens created for UCP (User Control Panels) or EclerNet Manager remote clients (*see section:* ***8. USER CONTROL PANELS (U.C.P.)***).
- *Enter Detail Mode* (return) / *Exit Detail Mode* (esc): toggles detailed view of the selected channel or device. The same function is performed by clicking on the *Detail* icon in the upper right corner of the application window ( ).
- *Enter Design Mode* / *Exit Design Mode:* enter / exit the application design mode. The same function is performed by clicking on the *Design* and *Deploy* toolbar buttons. All actions that may involve structural changes in a project are enabled in DESIGN mode only (primarily used by installers and / or high-level users), whereas DEPLOY mode can be considered as the system's daily management mode, not associated with structural changes. Operations considered as structural changes in a project are: add, delete or rename devices, drag devices "online" in a

project, save the project, open a new project, save "presets", create carousel or event lists, add or edit remote controls, etc.).

- Show *Toolbar / Hide Toolbar*: shows/hides the toolbar under the menu bar.
- *Show Project Explorer / Hide Project Explorer*: shows/hides the Project browser window on the left side of the screen. The same function is performed by clicking on the Explorer toolbar button.

1.4. *Help* Menu



- *User Manual*: displays this user manual.
- *Visit the Ecler Web Site*: direct access to www.ecler.com.
- *Report Logs*: provides direct access to the folder containing the system log files on your hard disk.
- *About…*: displays the current version of EclerNet Manager application.

1.5. The toolbar

The toolbar contains the following buttons for a direct access to functions:

- *Explorer:* same function as *View -> Show Project Explorer / Hide Project Explorer* menu entry: shows/hides the Project browser window on the left side of the screen.

- *Design/Deploy:* same function as *View -> Enter Design Mode*/*Exit Design Mode* menu entry: to enter/exit the application design mode.

  All actions that may involve structural changes in a Project are enabled in DESIGN mode only (primarily used by installers and/or high-level users), whereas DEPLOY mode can be considered as the system's daily management mode, not associated with structural changes. Operations considered as structural changes in a Project are: add, delete or rename devices, drag devices "online" in a Project, save the Project, open a new Project, save "Presets", create carousel or event lists, add or edit remote controls, etc.).

- *Users:* same function as *Edit -> Project Users* menu entry: opens the configuration window for users and passwords (see section: **1.2. Edit *Menu***)

- *Settings:* same function as *Edit -> Project Settings* menu entry: opens the Project general settings window (see section: **1.2. Edit *Menu***)

- *Lock:* when you have assigned a password to anyone of the high-level users (Administrator and/or Advanced User), you may enter the protect mode of the project, either by pressing the *Lock* toolbar button, or once "auto-lock" (automatic activation of the protect mode) time out has passed without user activity on the Project. To re-access the DEPLOY or DESIGN mode, you must enter the password respectively assigned to the Administrator or Advanced User.

- *Panic:* activating it mutes all the output channels of the Project (absolute silence of the system.) Deactivating it restores MUTES ON or OFF configuration as it was before activation.

- *ECLER Logo:* direct access to www.ecler.com

2. APPLICATION WINDOWS

2.1. Available windows

The following windows are available in EclerNet Manager:

EclerNet Manager - New Project*
File Edit View Help
Explorer
Design
Project Explorer
Devices (1 groups)
All (2)
Device 01 MIMO88
Device 02 NZA4-180
Channels (1 groups)
All (12)
Device 01 - OUT 1 : OUTPUT 9
Device 01 - OUT 2 : OUTPUT 2
Device 01 - OUT 3 : OUTPUT 3
Device 01 - OUT 4 : OUTPUT 4
Device 01 - OUT 5 : OUTPUT 5
Device 01 - OUT 6 : OUTPUT 6
Device 01 - OUT 7 : OUTPUT 7
Device 01 - OUT 8 : OUTPUT 8
Device 02 - CH1 : Channel 1
Online and Unused Device List
10.11.11.101 : 2210 MIMO88 (slave)
PRESERIE 4-180 10.11.12.19 : 2210 NZA4-180
PRESERIE I 4-70 10.11.12.15 : 2210 NZA4-400
PRESERIE I 4-70 10.11.12.17 : 2210 NZA4-70
PRESERIE I 6-18 10.11.12.18 : 2210 NZA6-180
PRESERIE I 6-70 10.11.12.16 : 2210 NZA6-70
PROTO 16x16 10.11.11.100 : 2210 MIMO88
PROTO 8x8 10.11.11.102 : 2210 MIMO88
[2011-02-10] [15:40:32] (Device) (Device 02) Added to

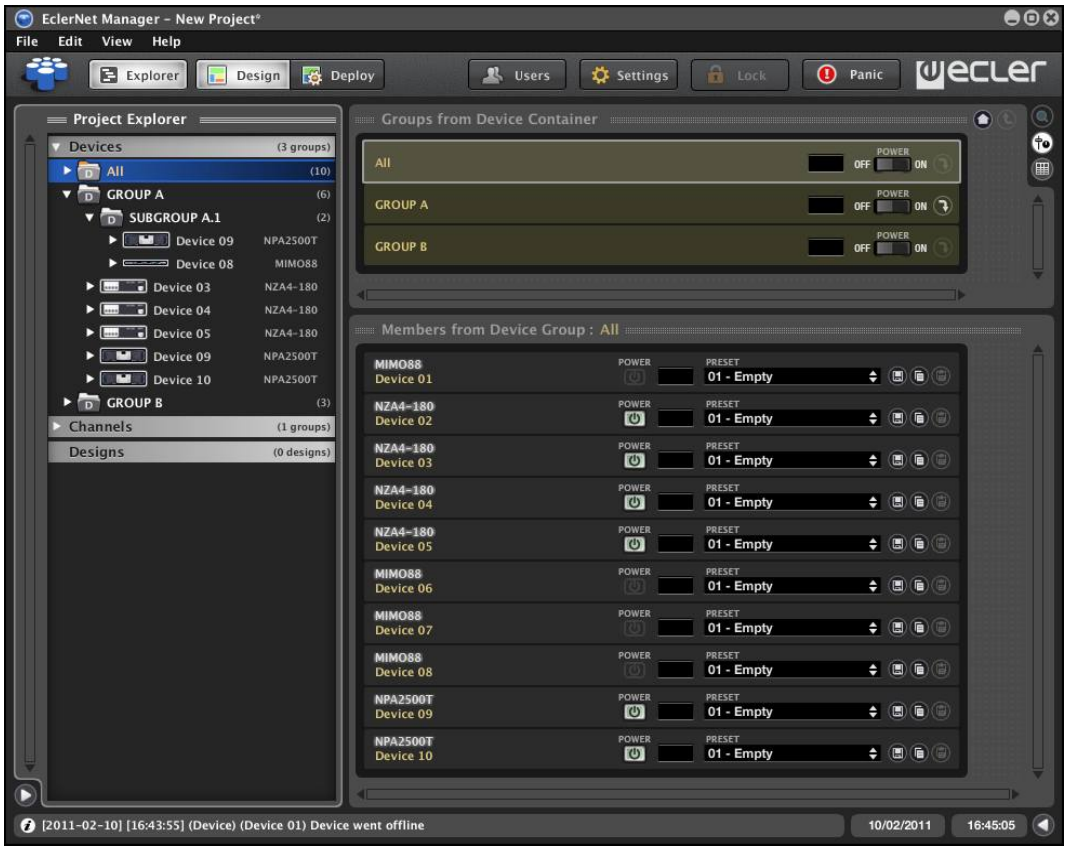
- *Project Explorer*: Project explorer for devices, channels and device or channel groups and control window design for EclerNet Manager remote clients. It can be enabled/disabled from the "*View -> Show/Hide Project Explorer*" menu or by the *Explorer* toolbar icon

- *Project Explorer Helper*: summary window, displayed at the bottom of the *Project Explorer* and showing:
    - A list of all devices in the Project (*Device List*)
    - A list of all channels in the Project (*Channel List*)
    - A list of devices detected on the network and currently not used in the Project (*Online and Unused Device List*)
    - Properties of the item selected in the Project Explorer (*Properties*)

  Devices are identified in this window by their assigned name and IP address.

  The *Project Explorer Helper* can be displayed and hidden by clicking on the triangle icon in the lower left corner of the *Project Explorer*.

- Device Groups display windows:



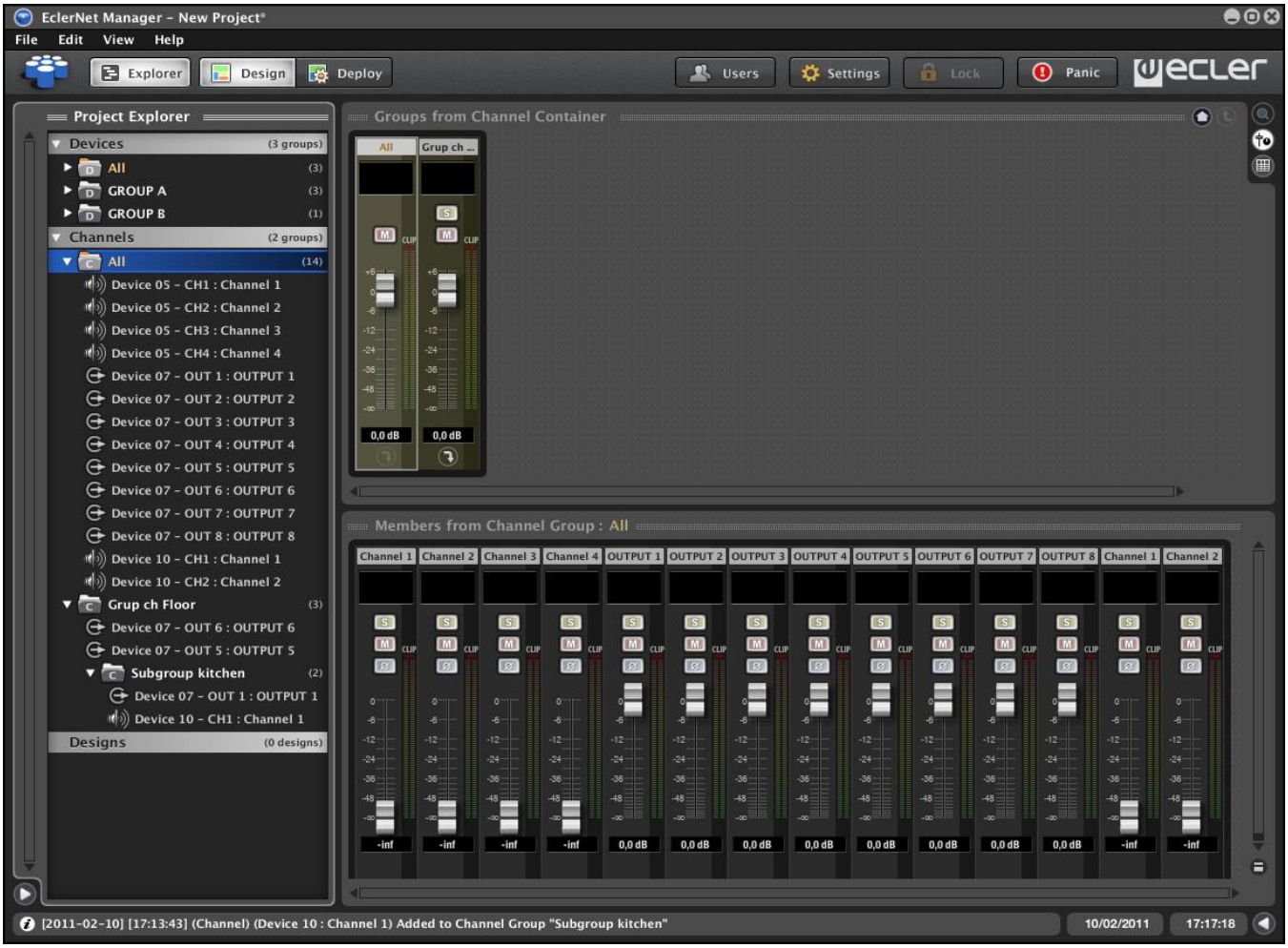
  - *Groups from Device Container*: shows all existing device groups
  - *Members from Device Group*: shows all existing devices and/or subgroups inside the group selected in the previous window

When selecting a particular group (double-click or icon), previous windows change to display the contents of this group, as in the example after selecting “SUBGROUP A.1”:

icons are used to go back in the group structure towards its root or the upper group container. Selecting a group in the *Project Explorer* also updates its detail windows.

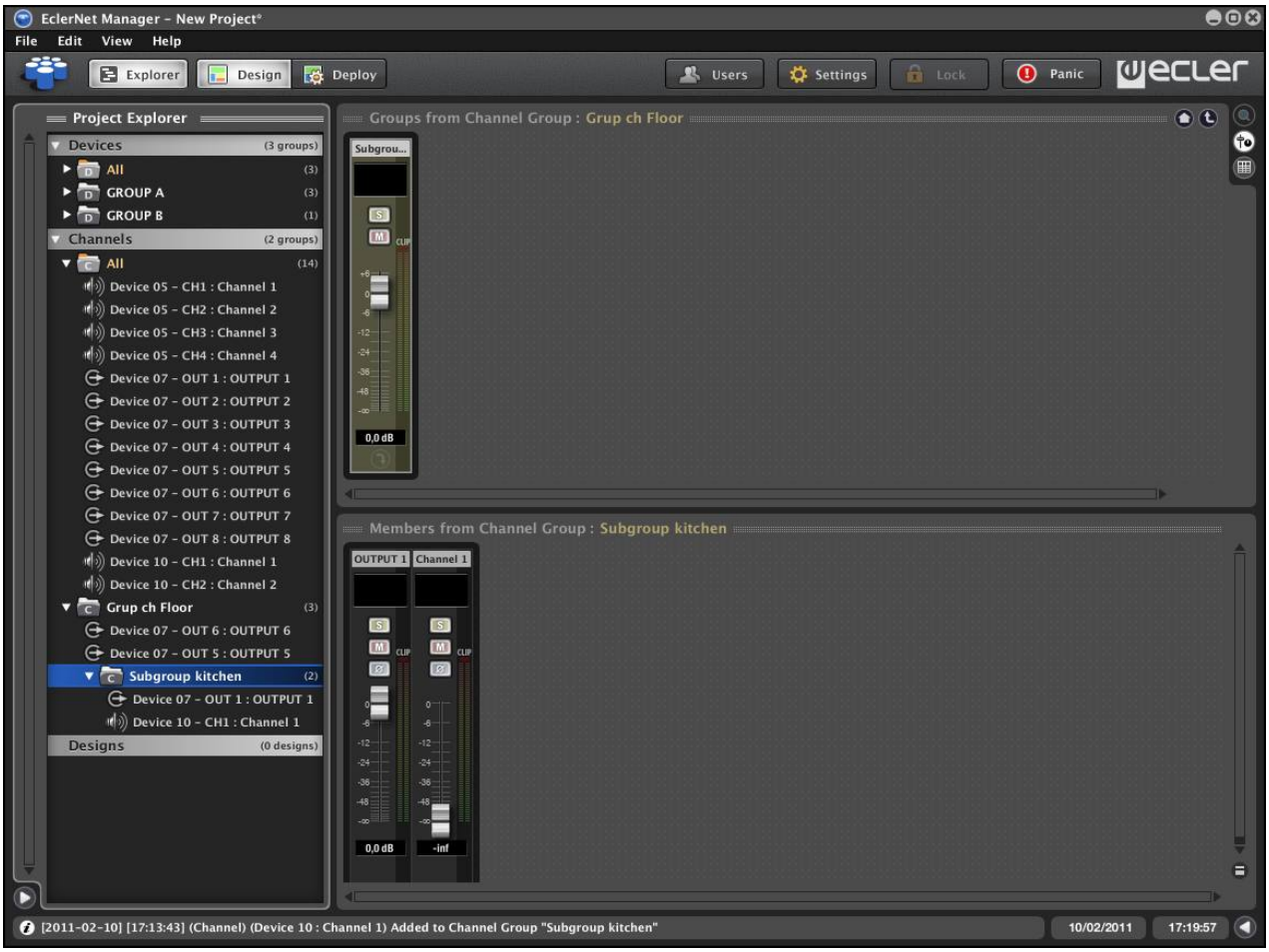
You can create groups within groups (subgroups), as shown in the picture above. To include a device within a group, you must drag and drop it from its location onto the group. More information about this in chapter **4. EclerNet PROJECT**.

- Channel Groups display windows:


EclerNet Manager – New Project*
File Edit View Help
Explorer Design Deploy Users Settings Lock Panic
Project Explorer
Devices (3 groups)
All (3)
GROUP A (3)
GROUP B (1)
Channels (2 groups)
All (14)
Device 05 - CH1 : Channel 1
Device 05 - CH2 : Channel 2
Device 05 - CH3 : Channel 3
Device 05 - CH4 : Channel 4
Device 07 - OUT 1 : OUTPUT 1
Device 07 - OUT 2 : OUTPUT 2
Device 07 - OUT 3 : OUTPUT 3
Device 07 - OUT 4 : OUTPUT 4
Device 07 - OUT 5 : OUTPUT 5
Device 07 - OUT 6 : OUTPUT 6
Device 07 - OUT 7 : OUTPUT 7
Device 07 - OUT 8 : OUTPUT 8
Device 10 - CH1 : Channel 1
Device 10 - CH2 : Channel 2
Grup ch Floor (3)
Device 07 - OUT 6 : OUTPUT 6
Device 07 - OUT 5 : OUTPUT 5
Subgroup kitchen (2)
Device 07 - OUT 1 : OUTPUT 1
Device 10 - CH1 : Channel 1
Designs (0 designs)
Groups from Channel Container
All
Grup ch ...
0,0 dB
Members from Channel Group : All
Channel 1 Channel 2 Channel 3 Channel 4 OUTPUT 1 OUTPUT 2 OUTPUT 3 OUTPUT 4 OUTPUT 5 OUTPUT 6 OUTPUT 7 OUTPUT 8 Channel 1 Channel 2
[2011-02-10] [17:13:43] (Channel) (Device 10 : Channel 1) Added to Channel Group "Subgroup kitchen"
10/02/2011
17:17:18

- *Groups from Channel Container*: shows all existing channel groups
- *Members from Channel Group*: shows all existing channels and/or subgroups within the group selected in the previous window

When selecting a particular group (double-click or icon), previous windows change to display the contents of this group, as in the example after selecting "*Grup ch Floor"*:


EclerNet Manager - New Project*
File Edit View Help
Explorer Design Deploy Users Settings Lock Panic
Project Explorer
Devices (3 groups)
All (3)
GROUP A (3)
GROUP B (1)
Channels (2 groups)
All (14)
Device 05 - CH1 : Channel 1
Device 05 - CH2 : Channel 2
Device 05 - CH3 : Channel 3
Device 05 - CH4 : Channel 4
Device 07 - OUT 1 : OUTPUT 1
Device 07 - OUT 2 : OUTPUT 2
Device 07 - OUT 3 : OUTPUT 3
Device 07 - OUT 4 : OUTPUT 4
Device 07 - OUT 5 : OUTPUT 5
Device 07 - OUT 6 : OUTPUT 6
Device 07 - OUT 7 : OUTPUT 7
Device 07 - OUT 8 : OUTPUT 8
Device 10 - CH1 : Channel 1
Device 10 - CH2 : Channel 2
Grup ch Floor (3)
Device 07 - OUT 6 : OUTPUT 6
Device 07 - OUT 5 : OUTPUT 5
Subgroup kitchen (2)
Device 07 - OUT 1 : OUTPUT 1
Device 10 - CH1 : Channel 1
Designs (0 designs)
Groups from Channel Group : Grup ch Floor
Subgrou...
0,0 dB
Members from Channel Group : Subgroup kitchen
OUTPUT 1
Channel 1
0,0 dB
-inf
[2011-02-10] [17:13:43] (Channel) (Device 10 : Channel 1) Added to Channel Group "Subgroup kitchen"
10/02/2011
17:19:57

icons are used to go back in the group structure towards its root or the upper group container. Selecting a group in the *Project Explorer* also updates its detail windows.

You can create groups within groups (subgroups), as shown in the picture above. To include a device within a group, you must drag and drop it from its location onto the group. See section: **4. EclerNet PROJECT**.

Clicking on the "*Show / Hide More Information*" icon in the lower right corner of the screen expands each channel viewing area with extra information, and two new icons appear above the previous one:

With the two new icons, you can select units (volts or watts) and scale (RMS or peak) used to display the LED metering of the channel output signal (amplified) (function available with NPA series).

The 4 expanded views of a same channel in NPA series

- *Device*: device detailed display window, appearing only when *Detail* mode is enabled. Shows all general controls for the device and/or one or more device channels (input selection, output configuration, network settings, DSP, monitoring, etc.)

***Device** window for NPA series device*

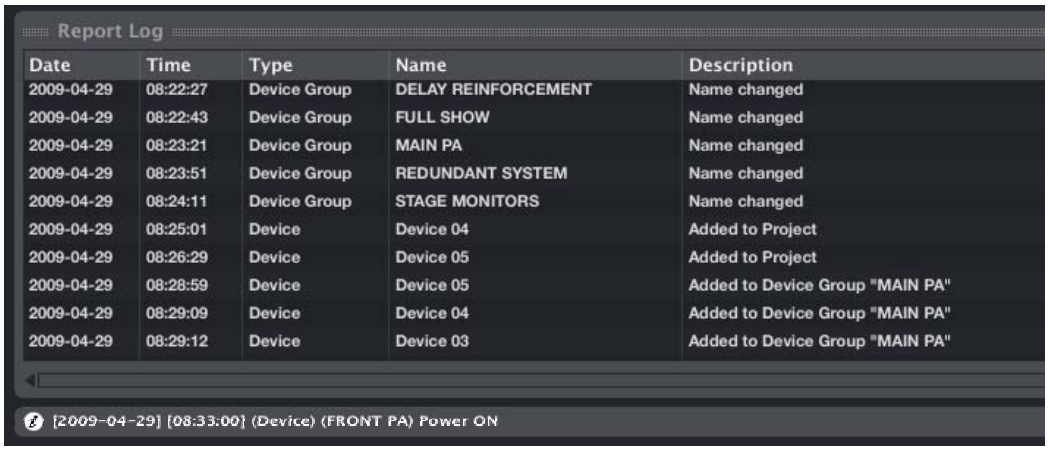
There are several ways to turn on/off the *Detail* mode:

- Clicking on the Detail ( ) icon in the upper right corner
- From the "*View -> Enter/Exit Detail Mode*" menu entry
- Double clicking on a device or channel in any of the Project windows
- Pressing *Return* or *Esc* after a channel or device selection in any of the Project windows

When the *Detail* mode is activated, the following icons appear in the lower right corner of the screen:

- *Show / Hide Channel 1*: shows/hides channel 1 controls for the selected device
- *Show / Hide Channel 2*: shows/hides channel 2 controls for the selected device ...
- *Show / Hide Channel n*: ditto the above for channel n, in NZA devices with 4 or 6 channels
- *Show / Hide Graph*: shows/hides a window graphically displaying the frequency-response curves resulting from *crossovers* and equalization applied to the corresponding channel by DSP processing (see section: **5.2. Detailed view**).

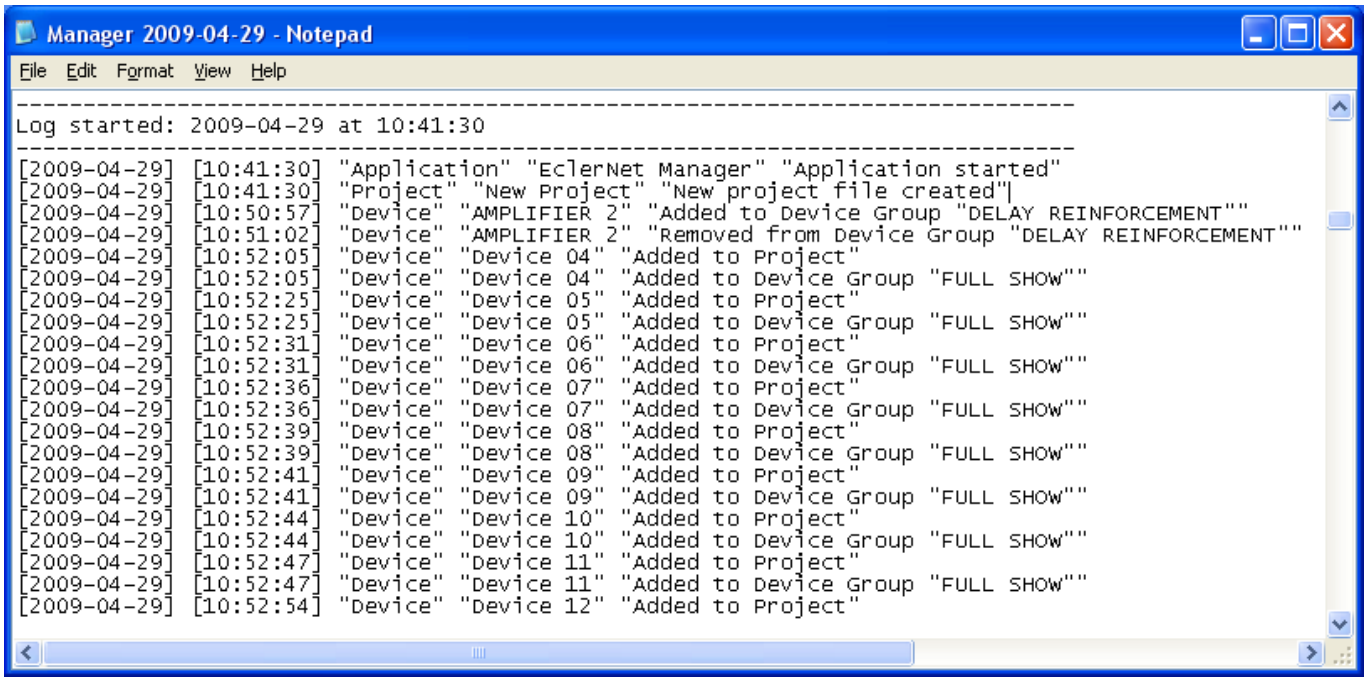
- *Report Log*: shows a record of major operations performed on the Project over time.


Report Log
Date Time Type Name Description
2009-04-29 08:22:27 Device Group DELAY REINFORCEMENT Name changed
2009-04-29 08:22:43 Device Group FULL SHOW Name changed
2009-04-29 08:23:21 Device Group MAIN PA Name changed
2009-04-29 08:23:51 Device Group REDUNDANT SYSTEM Name changed
2009-04-29 08:24:11 Device Group STAGE MONITORS Name changed
2009-04-29 08:25:01 Device Device 04 Added to Project
2009-04-29 08:26:29 Device Device 05 Added to Project
2009-04-29 08:28:59 Device Device 05 Added to Device Group "MAIN PA"
2009-04-29 08:29:09 Device Device 04 Added to Device Group "MAIN PA"
2009-04-29 08:29:12 Device Device 03 Added to Device Group "MAIN PA"
[2009-04-29] [08:33:00] (Device) (FRONT PA) Power ON

Shown/hidden by clicking on the triangle icon in the lower right corner of the EclerNet Manager screen.

The complete Report Log is stored as a text file on the hard disk. *Report Logs* option from the Help menu gives direct access to the folder containing log files or "report logs" generated since the system start-up.

A separate file is created for each day of use (the file name includes the date). If you run and quit the application several times a day, this is reported in the file.


Manager 2009-04-29 - Notepad
File Edit Format View Help
Log started: 2009-04-29 at 10:41:30
[2009-04-29] [10:41:30] "Application" "EclerNet Manager" "Application started"
[2009-04-29] [10:41:30] "Project" "New Project" "New project file created"
[2009-04-29] [10:50:57] "Device" "AMPLIFIER 2" "Added to Device Group "DELAY REINFORCEMENT""
[2009-04-29] [10:51:02] "Device" "AMPLIFIER 2" "Removed from Device Group "DELAY REINFORCEMENT""
[2009-04-29] [10:52:05] "Device" "Device 04" "Added to Project"
[2009-04-29] [10:52:05] "Device" "Device 04" "Added to Device Group "FULL SHOW""
[2009-04-29] [10:52:25] "Device" "Device 05" "Added to Project"
[2009-04-29] [10:52:25] "Device" "Device 05" "Added to Device Group "FULL SHOW""
[2009-04-29] [10:52:31] "Device" "Device 06" "Added to Project"
[2009-04-29] [10:52:31] "Device" "Device 06" "Added to Device Group "FULL SHOW""
[2009-04-29] [10:52:36] "Device" "Device 07" "Added to Project"
[2009-04-29] [10:52:36] "Device" "Device 07" "Added to Device Group "FULL SHOW""
[2009-04-29] [10:52:39] "Device" "Device 08" "Added to Project"
[2009-04-29] [10:52:39] "Device" "Device 08" "Added to Device Group "FULL SHOW""
[2009-04-29] [10:52:41] "Device" "Device 09" "Added to Project"
[2009-04-29] [10:52:41] "Device" "Device 09" "Added to Device Group "FULL SHOW""
[2009-04-29] [10:52:44] "Device" "Device 10" "Added to Project"
[2009-04-29] [10:52:44] "Device" "Device 10" "Added to Device Group "FULL SHOW""
[2009-04-29] [10:52:47] "Device" "Device 11" "Added to Project"
[2009-04-29] [10:52:47] "Device" "Device 11" "Added to Device Group "FULL SHOW""
[2009-04-29] [10:52:54] "Device" "Device 12" "Added to Project"

2.2. Graphic/table display modes

Groups and channels windows can be viewed in graphic format (reflecting images shown in the previous paragraph) or as a table by clicking on the dedicated icons in the upper right part of the screen (these icons are visible only when *Detail* mode is off).

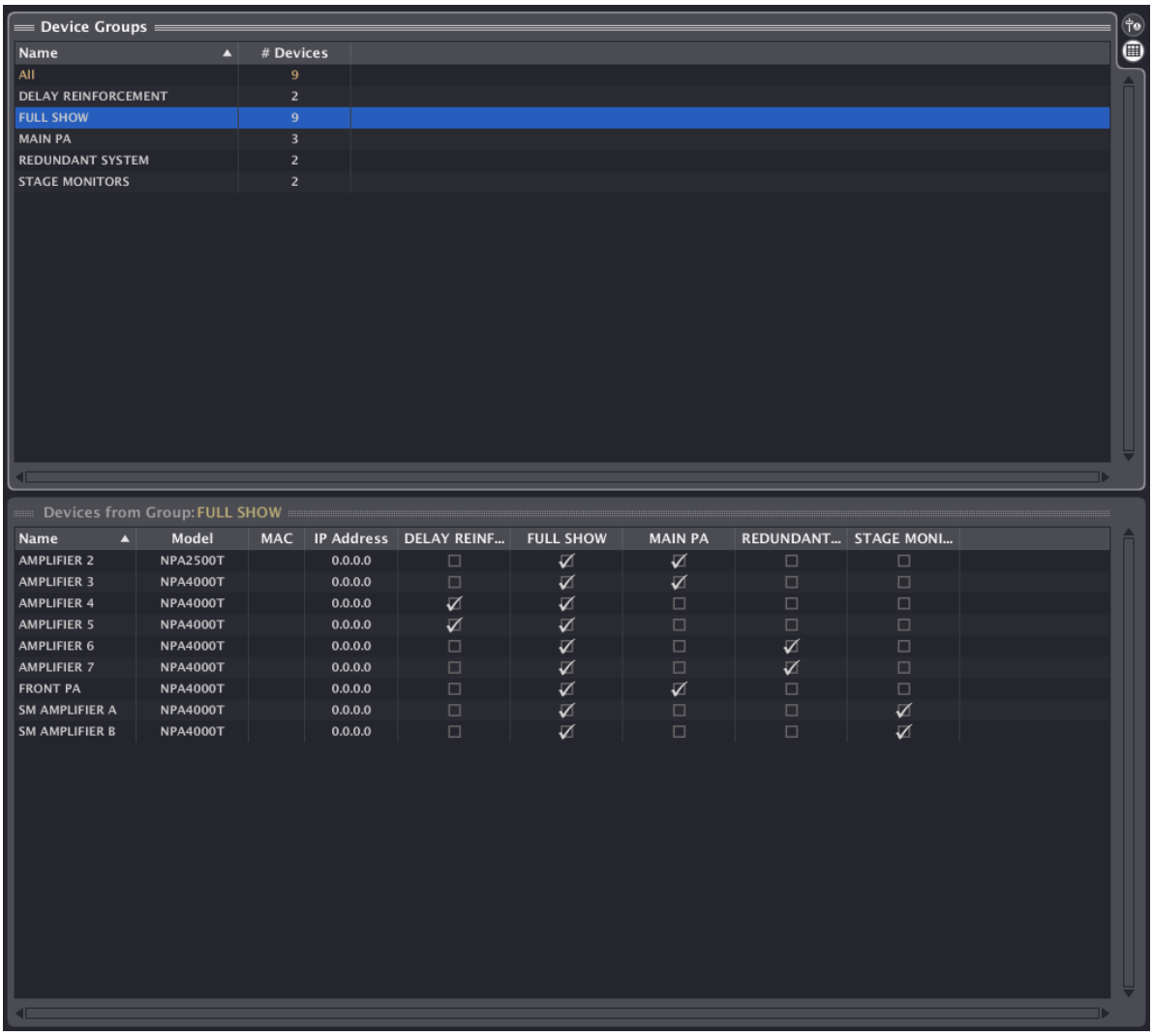
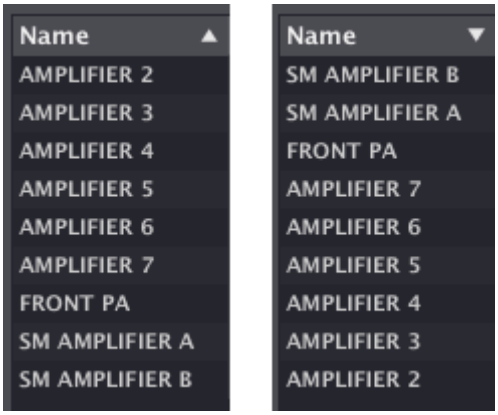


Table mode view

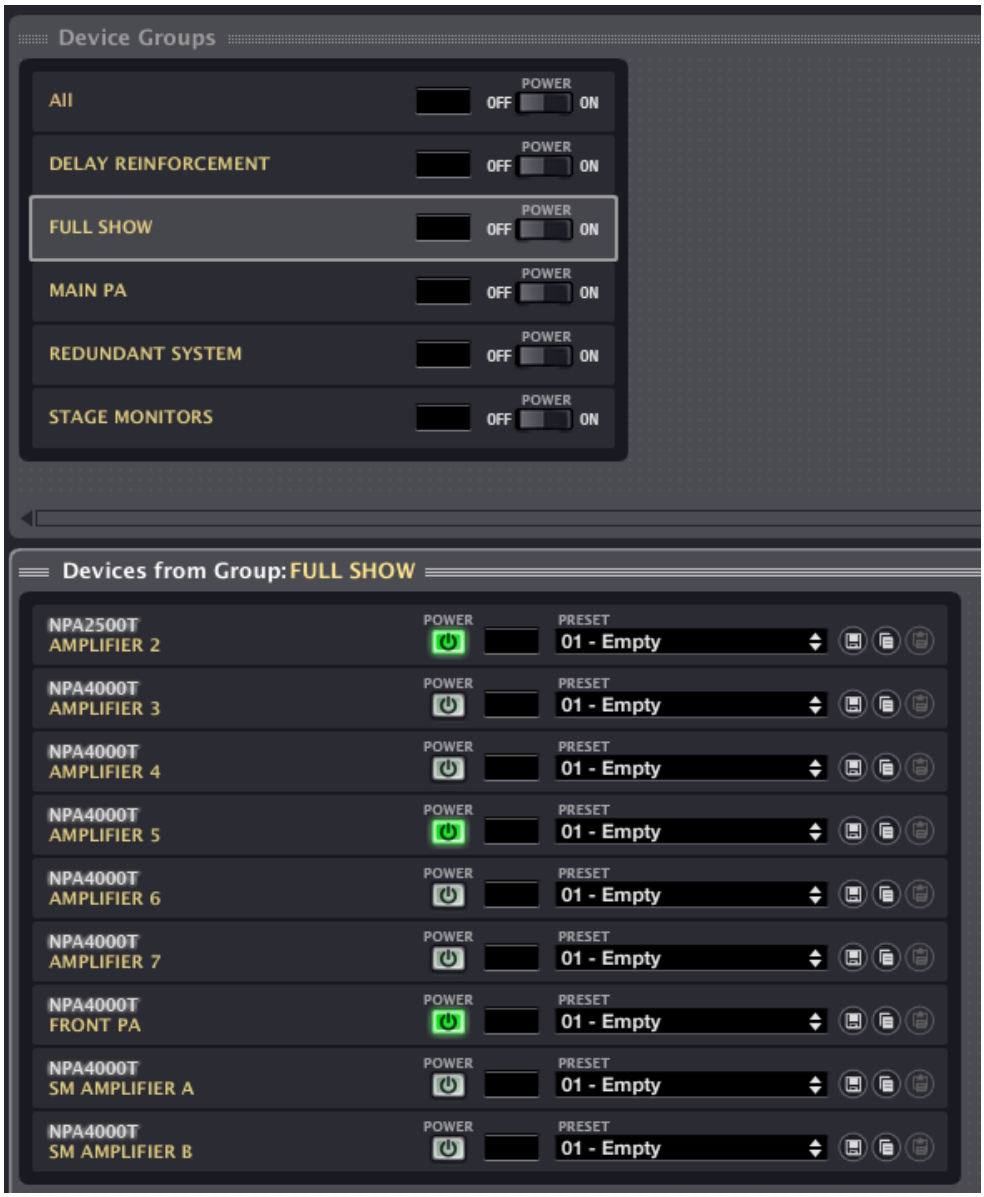
From the table mode view, you can add or remove devices or channels to/from existing groups by clicking on the corresponding check box.

To select the columns displayed in the table place the cursor on the table title bar and right-click.

To reverse the alphabetical listing order, left-click on any table header.



Ascending alphabetical order view/Descending alphabetical order view



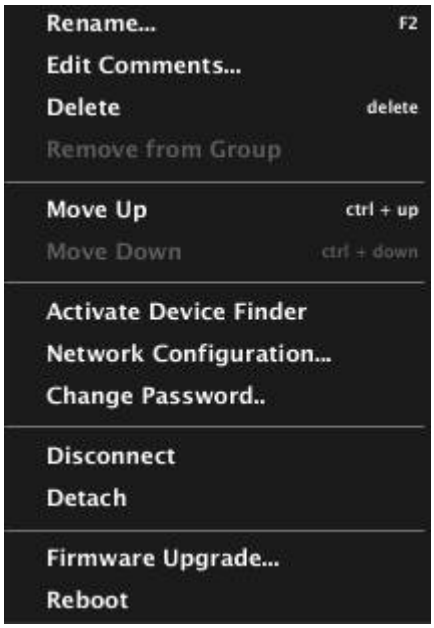
Graphic mode view

3. CONTEXT MENU: RIGHT MOUSE BUTTON

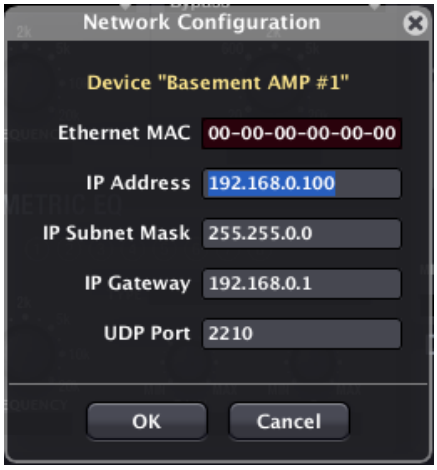
Right-clicking on various Project elements will open a context menu with possible actions for each case.

- *Device* context menu:
  Available from any device view (*Project Explorer, Project Explorer Helper*, Groups window, etc.).

  Options:



  1. *Rename* (F2): renames device.
  2. *Edit Comments*: allows a brief comment about the device to be added/modified (configuration, role in the Project, etc.) These comments can be viewed from EclerNet Manager, placing the cursor over a device or channel (or from the hardware device itself with NPA Series: see NPA series *hardware* manual for more details.)
  3. *Delete*: totally removes the device from the Project. If the virtual device was associated with a hardware device on the network, this last one will appear in the "*Online and Unused Device List*" from *Project Explorer Helper* after its deletion.
  4. *Remove from Group*: removes the device from the group the context menu has been opened for.
  5. *Move Up* (ctrl + ↑): moves up the selected device (changes the order within a group).
  6. *Move Down* (ctrl + ↓): moves down the selected device (changes the order within a group).
  7. *Activate / Deactivate Device Finder*: activates/deactivates the blinking of the front panel light indicators (LCD display for NPA series, LEDs for NZA series and MIMO88) on targeted hardware, thus allowing easy identification on site. Simultaneously, the frame of the device shown in EclerNet Manager windows also blinks, making it possible to link a virtual device of the Project with its hardware equivalent, for example to configure its network settings or to check its identity before changing its settings.
  8. *Network Configuration*: allows Ethernet parameters to be entered (and a posteriori verified) for the related device (IP address, subnet mask, gateway and UDP port). The MAC address is a read-only parameter, unique and assigned by the manufacturer to any Ethernet device.



  9. *Change Password:* allows the password to be assigned or changed in order to protect the device. When a device has this type of password (blank per default = OFF) assigned in a Project, the device cannot be re-programmed from other Projects unless you enter the correct password. Any change in the new Project will not be effective in the *hardware* device until password is entered, and it's indicated in the device status window by an exclamation mark on the connection indicator ( ) and the flashing icon)
  10. *Connect / Disconnect*: connects (or disconnects) the device to the network, to make it available for remote control from EclerNet Manager.
  11. *Detach*: breaks the link between an EclerNet virtual device and its physical counterpart. The hardware device, if detected "online" on the network, becomes part of the "*Online and Unused Device List*" in the *Project Explorer Helper* window.
  12. *Firmware Upgrade*: opens a dialog box that allows you to load a device *firmware* file (with .bin extension) and to transfer it to the related device. The device must be "online" to perform this operation.
  13. *Reboot*: resets the device, following the usual boot sequence.
- *Channel* context menu:

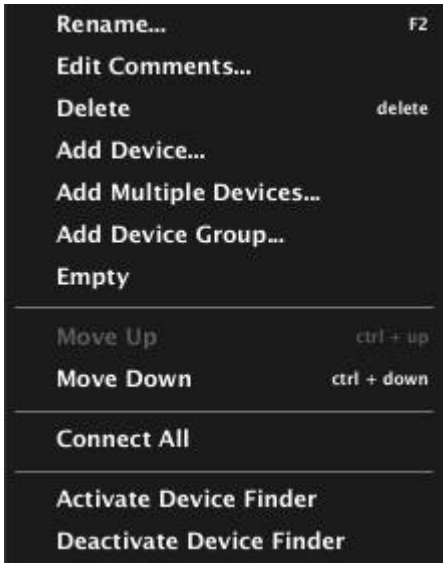
Available from any channel view (*Project Explorer, Project Explorer Helper*, Groups window, etc.).

Options:

1. *Rename* (F2): allows the channel to be renamed.
2. *Edit Comments*: allows a brief comment about the channel to be added/modified (configuration, role in the Project, etc.).
3. *Remove from Group*: removes the channel from the group the context menu has been opened for.
4. *Go to Device*: automatically selects the device the targeted channel belongs to, showing it in the currently active windows (graphic or table).
5. *Move Up* (ctrl + ↑): moves up the selected channel (changes the order within a group).
6. *Move Down* (ctrl + ↓): moves down the selected channel (changes the order within a group).

- *Device Group* context menu:
  Available from any device group view (*Project Explorer*, Groups window).

Options:

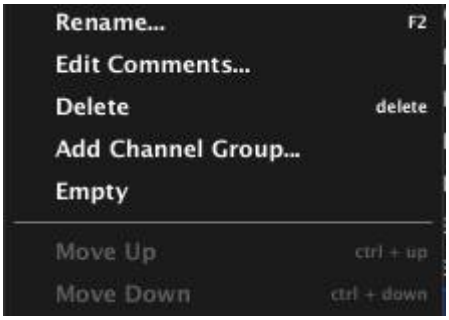


1. *Rename* (F2): allows the device group to be renamed.
2. *Edit Comments*: allows a brief comment about the device group to be added/modified (configuration, role in the Project, etc.).
3. *Delete*: totally removes the group from the Project.
4. *Add Device*: adds a new device to the group and therefore to the Project.
5. *Add Multiple Devices*: adds several new devices to the current Project.
   Parameters:
   - *Device Type*: selects in a list of compatible EclerNet device types the one to add.
   - *Number*: number of devices to add.
6. *Add Device Group*: opens a dialog box to create a new device group in the current Project.
   Parameters:
   - *Group Name*: allows the new device group to be named.

   Note*: you can create a group within a group (see section:* ***4. EclerNet PROJECT****)*
7. *Empty*: removes all devices from the group, leaving it empty.
8. *Move Up* (ctrl + ↑): moves up the selected group (changes the order).
9. *Move Down* (ctrl + ↓): moves down the selected group (changes the order).
10. *Connect All*: connects all group devices to the network, so they become available for remote control from EclerNet Manager.
11. *Activate Device Finder*: enables the *Device Finder* for all online devices within the group.
12. *Deactivate Device Finder*: disables the *Device Finder* for all online devices within the group.

- *Channel Group* context menu:
  Available from any channel group view (*Project Explorer*, Groups window).

  Options:



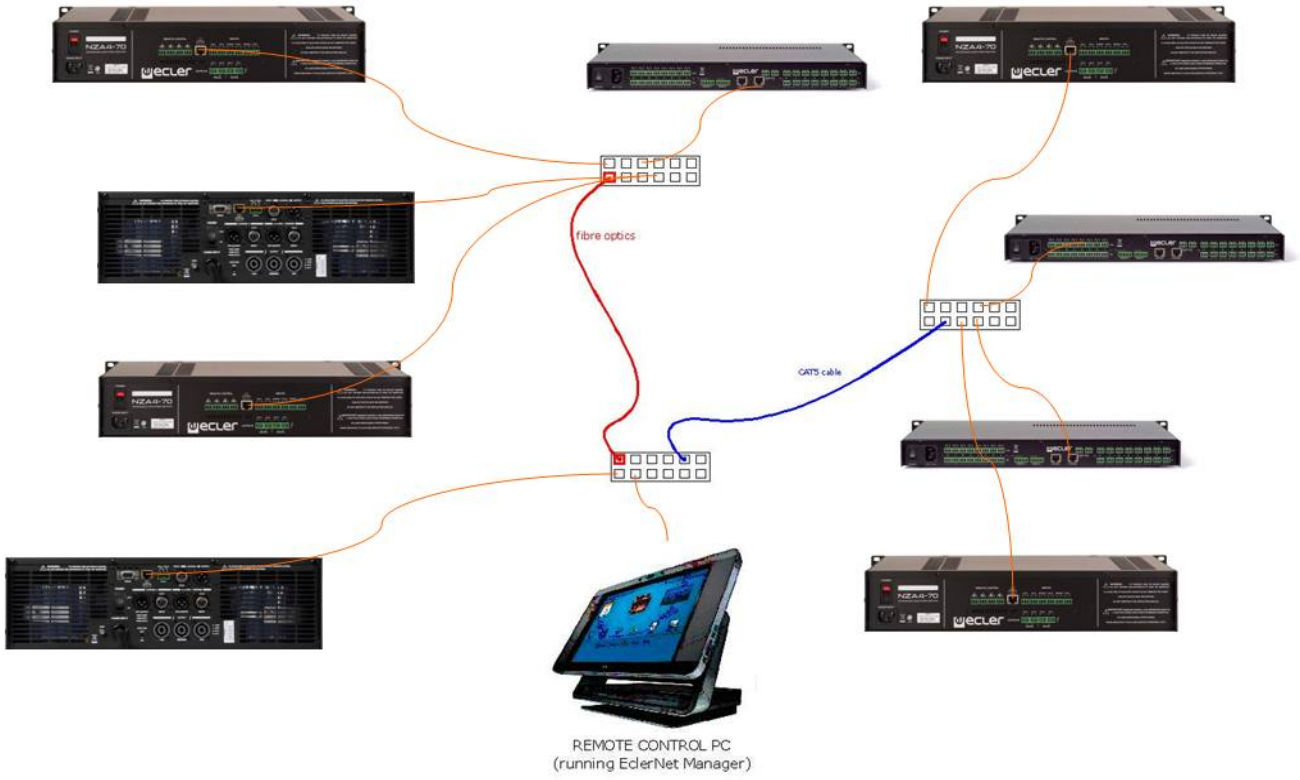
  1. *Rename* (F2): allows the channel group to be renamed.
  2. *Edit Comments*: allows a brief comment about the channel group to be added/modified (configuration, role in the Project, etc.).
  3. *Delete*: totally removes the group from the Project.
  4. *Add Channel Group:* opens a dialog box to create a new channel group in the current Project.
     Parameters:
     - *Group Name*: allows the new channel group to be named.
     - ***Note****: you can create a group within a group (see section:* ***4. EclerNet PROJECT****)*
  5. *Empty*: removes all channels from the group, leaving it empty.
  6. *Move Up* (ctrl + ↑): moves up the selected group (changes the order).
  7. *Move Down* (ctrl + ↓): moves down the selected group (changes the order).

4. EclerNet PROJECT

A Project is a configuration and remote control file for EclerNet device network. It contains a number of EclerNet virtual devices, structured according to a hierarchical arrangement of control groups for such devices and/or for their audio channels.
The purpose of a Project, once *online*, is to configure, remotely control and monitor a number of hardware devices connected to an Ethernet network. The network can include any combination of EclerNet compatible devices: NZA series amplifiers, NPA series amplifiers and MIMO88 digital matrix.

The created file has the .enp extension and must be opened and operated from the EclerNet Manager application.

A Project can be created and edited offline, without being connected to the site Ethernet network, and later turned to online or real system management mode from a PC connected to the same network EclerNet compatible devices are connected to.

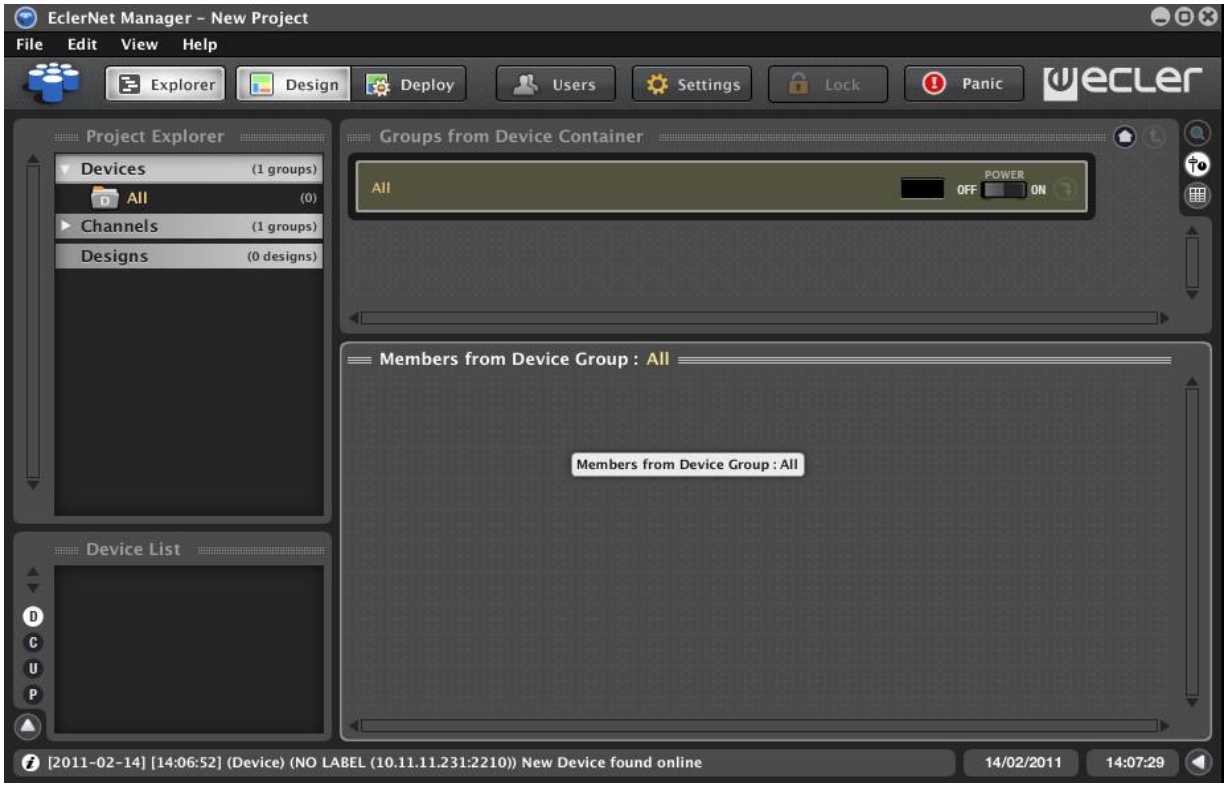


Example of EclerNet network including NZA, NPA and MIMO88 devices, the computer running EclerNet Manager and Ethernet network infrastructure that interconnects them.

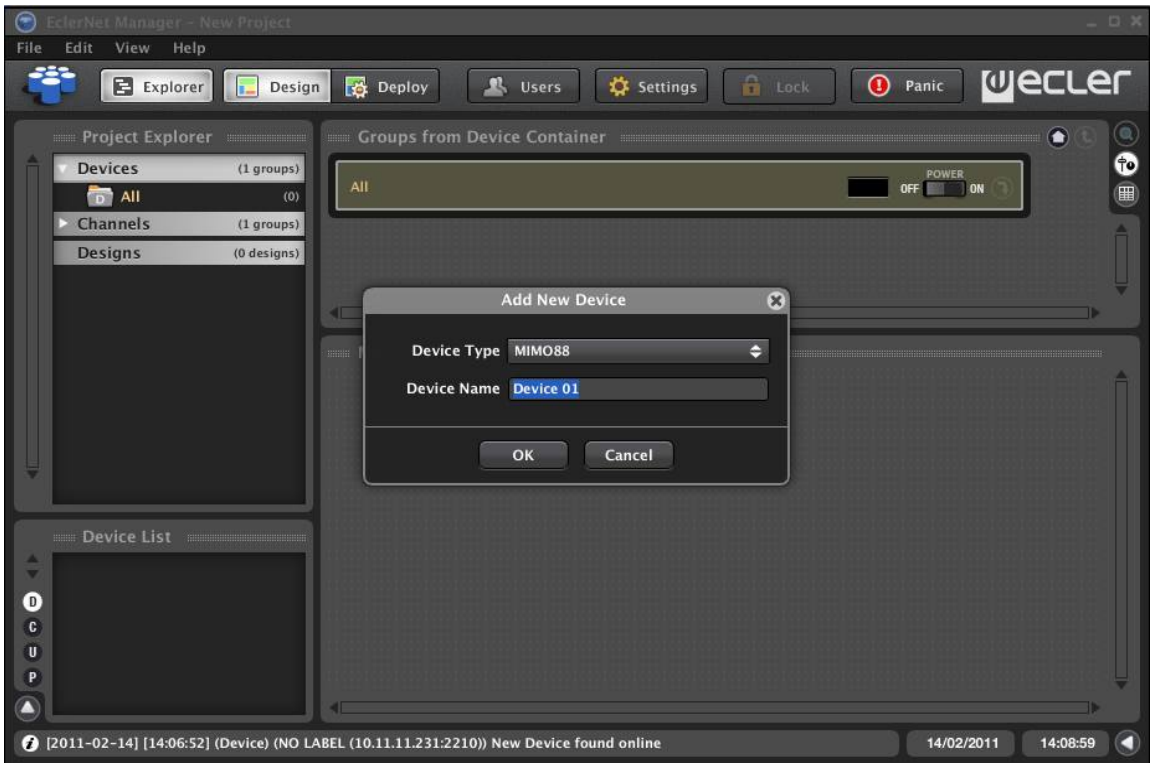
4.1. Creating an EclerNet Project

The steps for setting up a Project from scratch are:

1. Opening of a new file (*File -> N*ew menu entry or Ctrl + N keyboard shortcut). The default new Project window appears, looking like the following:

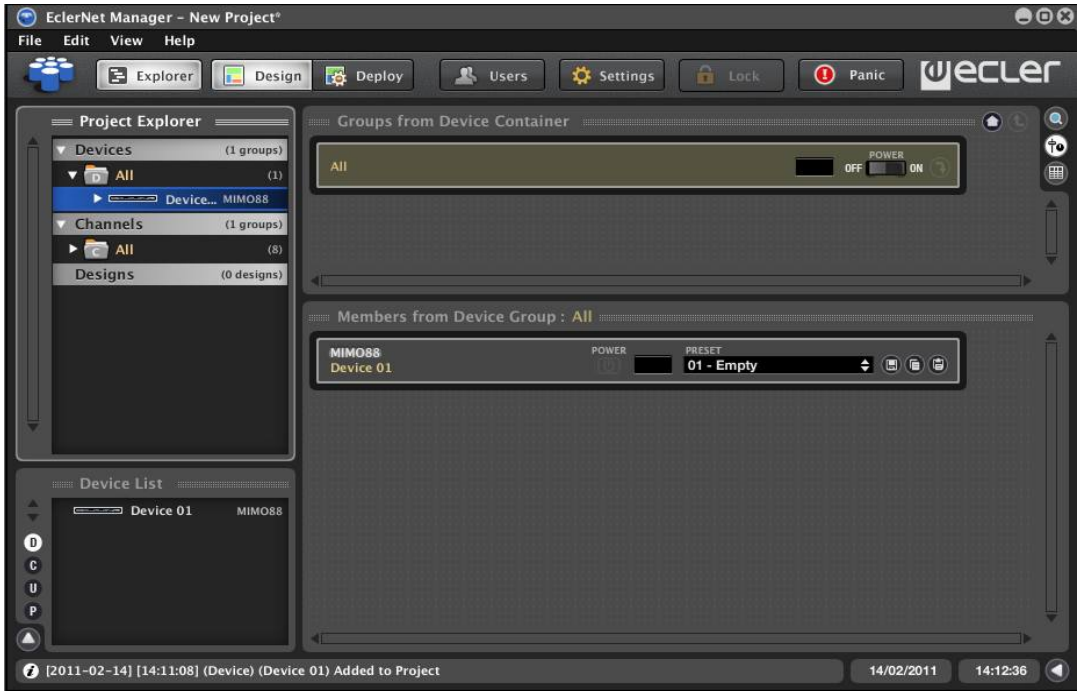


2. Insertion of new devices in the Project (*Edit -> Add Device* menu entry). A dialog box opens to select the device type and assign it a custom name:



After clicking OK, the new device appears in the various Project windows:

1. *Project Explorer*
2. *Project Explorer Helper*
3. *Groups from Device Container* or *Groups from Channel Container*
4. *Members from Device Group* or *Members from Channel Group*



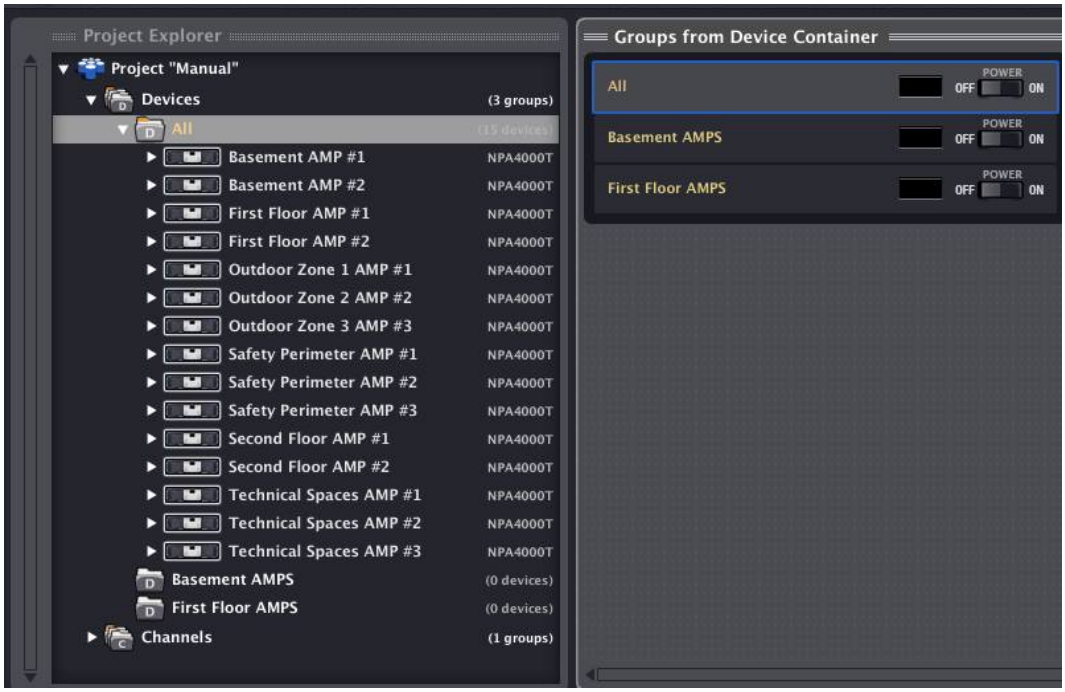
Added devices automatically appear in the "*All*" device and channel default groups, which respectively contain all the Project devices and channels. You can also add devices to the Project by right-clicking on a device group (*Add Device* option in the context menu).

3. Creating a device group.

There are two ways to create a device group:

1. *Edit -> Add Device Group* menu entry
2. Right-clicking on *Devices* in *Project Explorer* and *Add Device Group* option in the context menu

After their creation, the new groups appear in the corresponding Project windows.

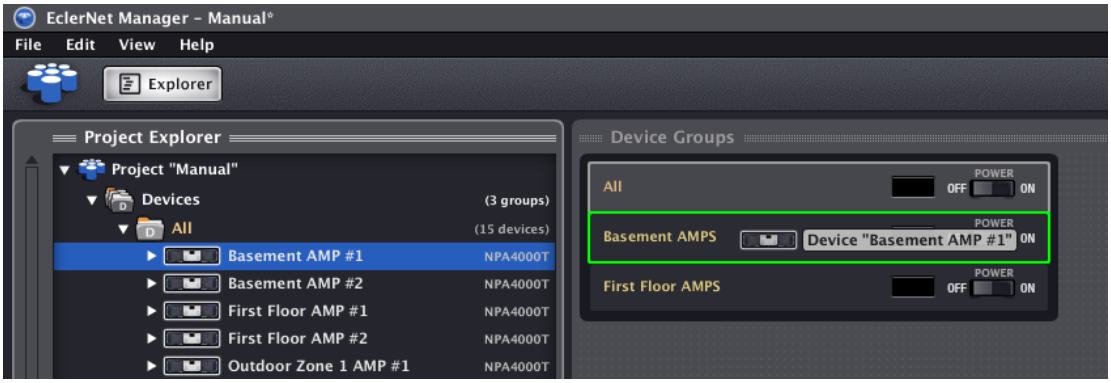


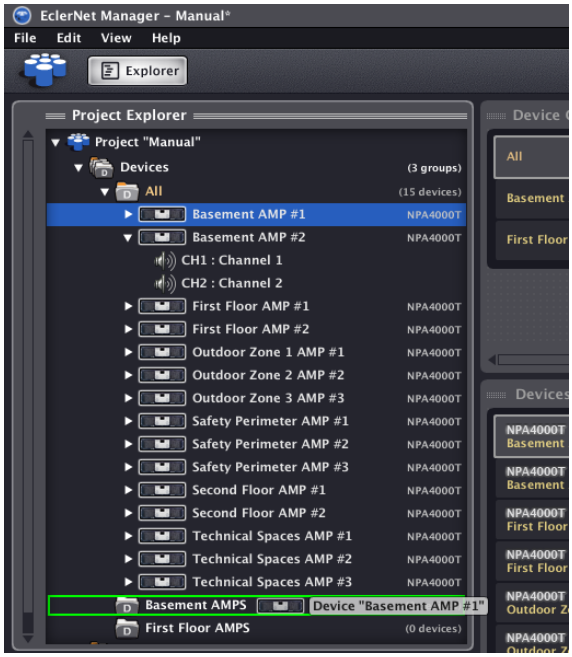
You can also create groups within groups:

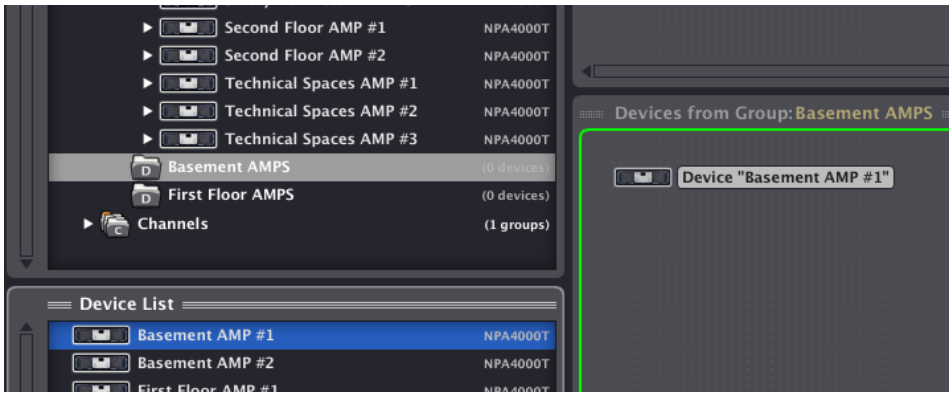
Assigning a device to a group of devices is as simple as dragging it from any window and dropping it in any window displaying the group. A green frame appears indicating that the destination of the drag and drop operation is validated and included in the Project.

The table mode view is another way to assign, where a device can be included or excluded in/from a device group by directly clicking on the column with the group name.

Example: different ways to assign the “Basement AMP #1” device to the “Basement AMPS” group:




EclerNet Manager – Manual*
File Edit View Help
Explorer
Project Explorer
Project "Manual"
Devices (3 groups)
All (15 devices)
Basement AMP #1 NPA4000T
Basement AMP #2 NPA4000T
CH1 : Channel 1
CH2 : Channel 2
First Floor AMP #1 NPA4000T
First Floor AMP #2 NPA4000T
Outdoor Zone 1 AMP #1 NPA4000T
Outdoor Zone 2 AMP #2 NPA4000T
Outdoor Zone 3 AMP #3 NPA4000T
Safety Perimeter AMP #1 NPA4000T
Safety Perimeter AMP #2 NPA4000T
Safety Perimeter AMP #3 NPA4000T
Second Floor AMP #1 NPA4000T
Second Floor AMP #2 NPA4000T
Technical Spaces AMP #1 NPA4000T
Technical Spaces AMP #2 NPA4000T
Technical Spaces AMP #3 NPA4000T
Basement AMPS Device "Basement AMP #1"
First Floor AMPS (0 devices)

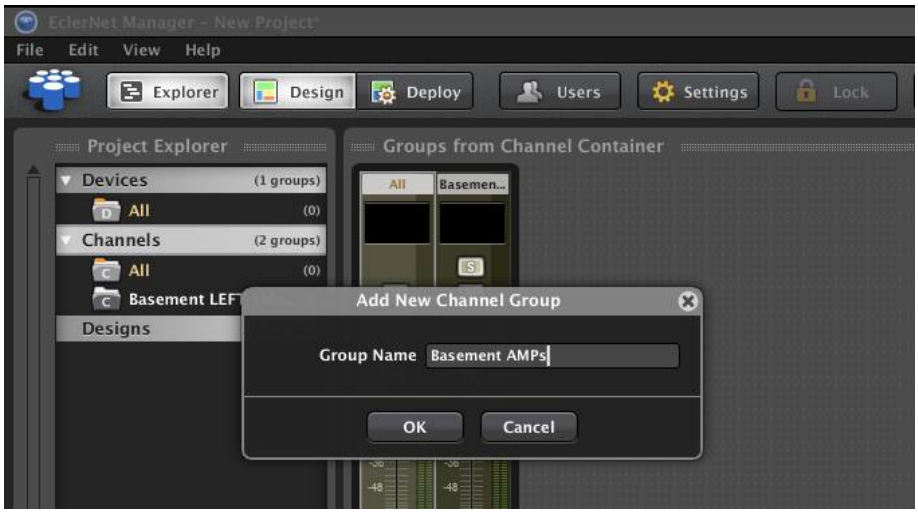

Second Floor AMP #1 NPA4000T
Second Floor AMP #2 NPA4000T
Technical Spaces AMP #1 NPA4000T
Technical Spaces AMP #2 NPA4000T
Technical Spaces AMP #3 NPA4000T
Basement AMPS (0 devices)
First Floor AMPS (0 devices)
Channels (1 groups)
Devices from Group: Basement AMPS
Device "Basement AMP #1"
Device List
Basement AMP #1 NPA4000T
Basement AMP #2 NPA4000T

A device group provides both management and supervision (from the group control interface) of some controls concerning all devices in the same group (e.g. to sequentially turn on/off all group amplifiers by pressing the group *POWER* key).

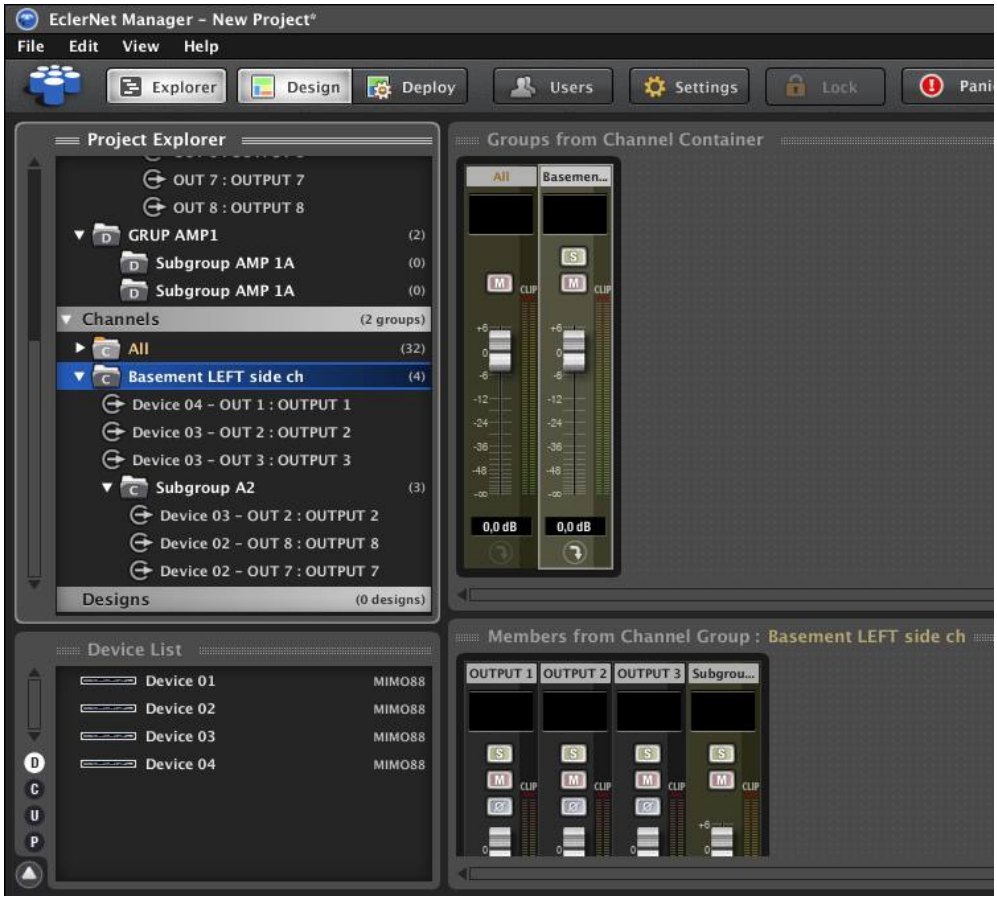
4. Creating a channel group.

There are two ways to create a channel group:

1. *Edit -> Add Channel Group* menu entry
2. Right-clicking on *Channels* in *Project Explorer* and *Add Channel Group* option in the context menu



After creation, new groups appear in the corresponding Project windows.

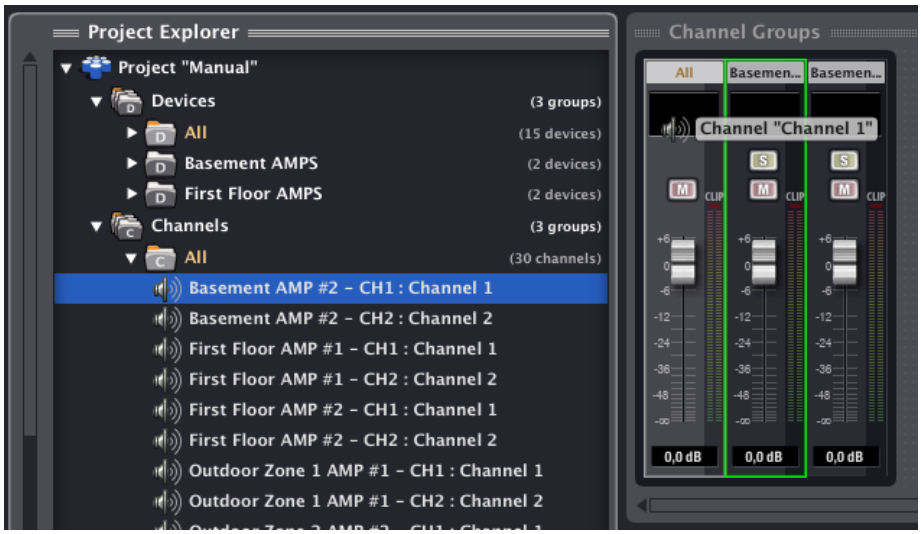

EclerNet Manager – New Project*
File Edit View Help
Explorer Design Deploy Users Settings Lock Pani
Project Explorer
OUT 7 : OUTPUT 7
OUT 8 : OUTPUT 8
GRUP AMP1 (2)
Subgroup AMP 1A (0)
Subgroup AMP 1A (0)
Channels (2 groups)
All (32)
Basement LEFT side ch (4)
Device 04 – OUT 1 : OUTPUT 1
Device 03 – OUT 2 : OUTPUT 2
Device 03 – OUT 3 : OUTPUT 3
Subgroup A2 (3)
Device 03 – OUT 2 : OUTPUT 2
Device 02 – OUT 8 : OUTPUT 8
Device 02 – OUT 7 : OUTPUT 7
Designs (0 designs)
Groups from Channel Container
All
Basemen...
0,0 dB
0,0 dB
Device List
Device 01 MIMO88
Device 02 MIMO88
Device 03 MIMO88
Device 04 MIMO88
Members from Channel Group : Basement LEFT side ch
OUTPUT 1
OUTPUT 2
OUTPUT 3
Subgrou...

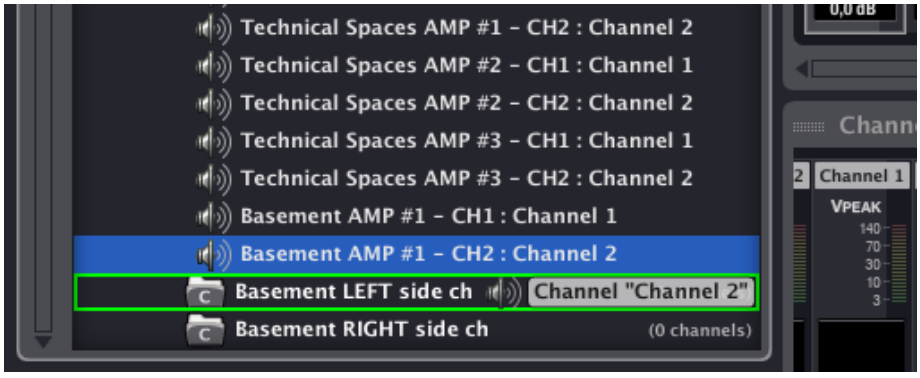
As with device groups you can also create channel groups within other channel groups.

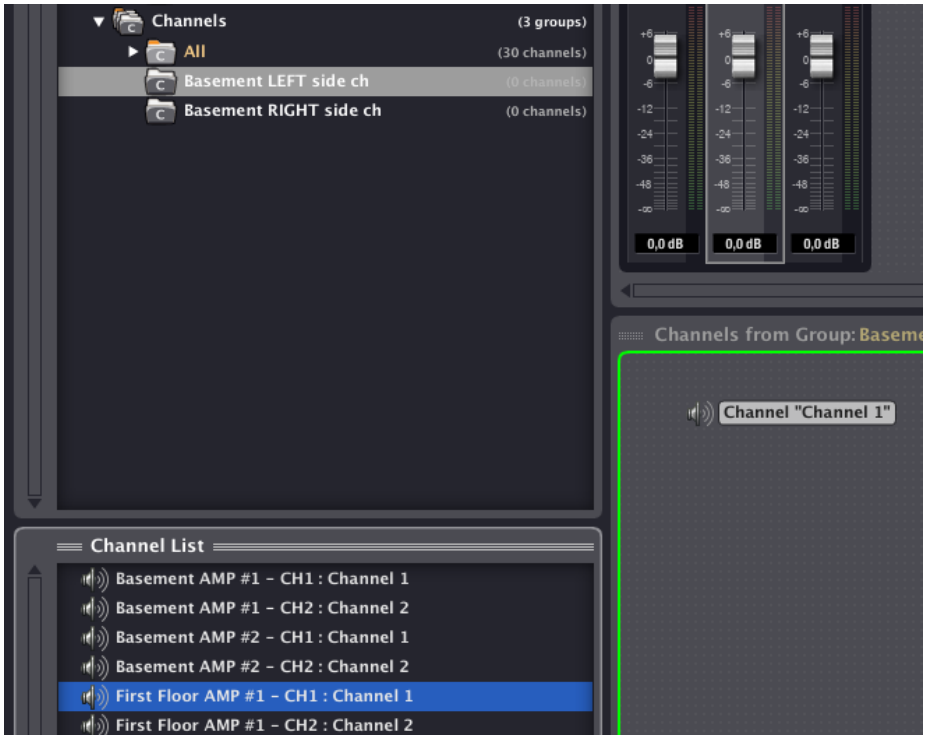
Assigning channels to a channel group is done using the same “drag and drop” procedure already described for the device assignment to device groups.

Similarly, it is possible to achieve this in a very practical way with table mode.

Examples of different ways of assigning a channel to a channel group:


Project Explorer
Project "Manual"
Devices (3 groups)
All (15 devices)
Basement AMPS (2 devices)
First Floor AMPS (2 devices)
Channels (3 groups)
All (30 channels)
Basement AMP #2 – CH1 : Channel 1
Basement AMP #2 – CH2 : Channel 2
First Floor AMP #1 – CH1 : Channel 1
First Floor AMP #1 – CH2 : Channel 2
First Floor AMP #2 – CH1 : Channel 1
First Floor AMP #2 – CH2 : Channel 2
Outdoor Zone 1 AMP #1 – CH1 : Channel 1
Outdoor Zone 1 AMP #1 – CH2 : Channel 2
Channel Groups
All
Basemen...
Basemen...
Channel "Channel 1"
0,0 dB
0,0 dB
0,0 dB


Technical Spaces AMP #1 – CH2 : Channel 2
Technical Spaces AMP #2 – CH1 : Channel 1
Technical Spaces AMP #2 – CH2 : Channel 2
Technical Spaces AMP #3 – CH1 : Channel 1
Technical Spaces AMP #3 – CH2 : Channel 2
Basement AMP #1 – CH1 : Channel 1
Basement AMP #1 – CH2 : Channel 2
Basement LEFT side ch
Channel "Channel 2"
Basement RIGHT side ch (0 channels)
Channel 1
VPEAK


Channels (3 groups)
All (30 channels)
Basement LEFT side ch (0 channels)
Basement RIGHT side ch (0 channels)
0,0 dB
0,0 dB
0,0 dB
Channels from Group: Baseme
Channel "Channel 1"
Channel List
Basement AMP #1 – CH1 : Channel 1
Basement AMP #1 – CH2 : Channel 2
Basement AMP #2 – CH1 : Channel 1
Basement AMP #2 – CH2 : Channel 2
First Floor AMP #1 – CH1 : Channel 1
First Floor AMP #1 – CH2 : Channel 2

A channel group provides both management and supervision (from the group control interface) of some controls concerning all channels in the same group (e.g. to vary the volume or enable/disable *MUTE* or *SOLO* for all group channels by pressing the group M or S key).

5. Identification of networked devices.

There are two methods to identify a Project device with its hardware counterpart on the network:

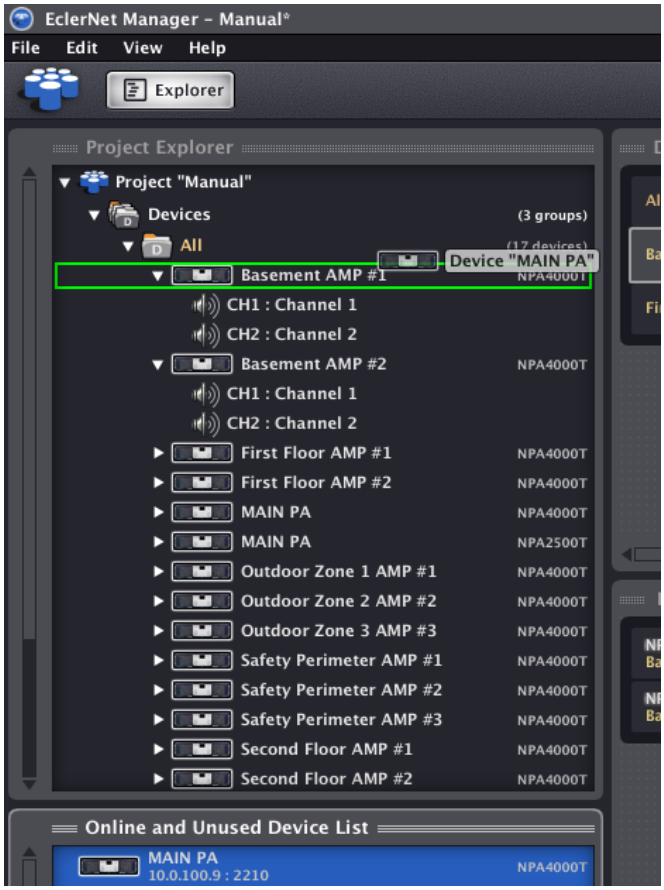
1. Configuration of device network parameters.
   Using the *Network Configuration* option in the device context menu (right-click), you obtain network parameters that uniquely identify the hardware device configured with exactly the same parameters:

If there is no hardware device with the entered IP address in the network, selecting *Connect* from the context menu won't establish the connection between the device and EclerNet Manager (blinking red connection icon).

If there is such a device in the network, selecting *Connect* from the context menu opens the synchronization window which allows the Project virtual device current status to be sent to the hardware device, or the reverse: updating the Project virtual device status with the hardware device actual status. Once connection has been established (blinking green connection icon), the device is removed from the "*Online and Unused Device List*" in *Project Explorer Helper.*

Once synchronized, the device appears in EclerNet Manager with its green connection icon lit.

2. Direct identification with an online device.
   The *Project Explorer Helper* window (*Online and Unused Device List*) displays all devices detected on the network and not assigned to Project virtual devices. You can use the “drag and drop” method to associate each one with its virtual counterpart in the Project:



After release, a window appears asking you to confirm the link between the hardware device and the Project virtual device. After confirmation, the device disappears from the “Online and Unused Device List” and a blinking red icon appears, indicating that connection is not established.

You can also drag an existing device from the *Project Explorer Helper* (*Online and Unused Device List*) and drop it directly on the device group "*All*" or any other device group of the Project to include it:

Or even add to the project all devices of the network by clicking on the "+" button located in the upper right corner of Project Explorer Helper:

***Note**: device identification can be cancelled using the Detach option in the context menu.*

IMPORTANT NOTE ABOUT ALLOCATION OF NETWORK PARAMETERS

EclerNet compatible devices (MIMO88, NZA, NPA, etc.) **do not support dynamic allocation protocol for network addresses, or DHCP**, ie: they can't dynamically negotiate IP addresses and require manually configured and fixed IP addresses. It is highly recommended that both EclerNet devices (MIMO88, NZA, NPA, etc.) and the computer running EclerNet Manager are configured with static network addresses from the same range in order to have a full connectivity between all of them. An example of a small local network of this type may have the following network settings in its EclerNet devices:

DEVICE	IP ADDRESS	IP SUBNET MASK
MIMO88 (first floor)	10.5.5.10	255.255.255.0
MIMO88 (second floor)	10.5.5.11	255.255.255.0
MIMO88 (outdoor areas)	10.5.5.12	255.255.255.0
NZA6-180 (first floor)	10.5.5.20	255.255.255.0
NZA6-80 (second floor)	10.5.5.21	255.255.255.0
NZA4-700 (outdoor areas)	10.5.5.22	255.255.255.0
PC (running EclerNet Manager)	10.5.5.100	255.255.255.0

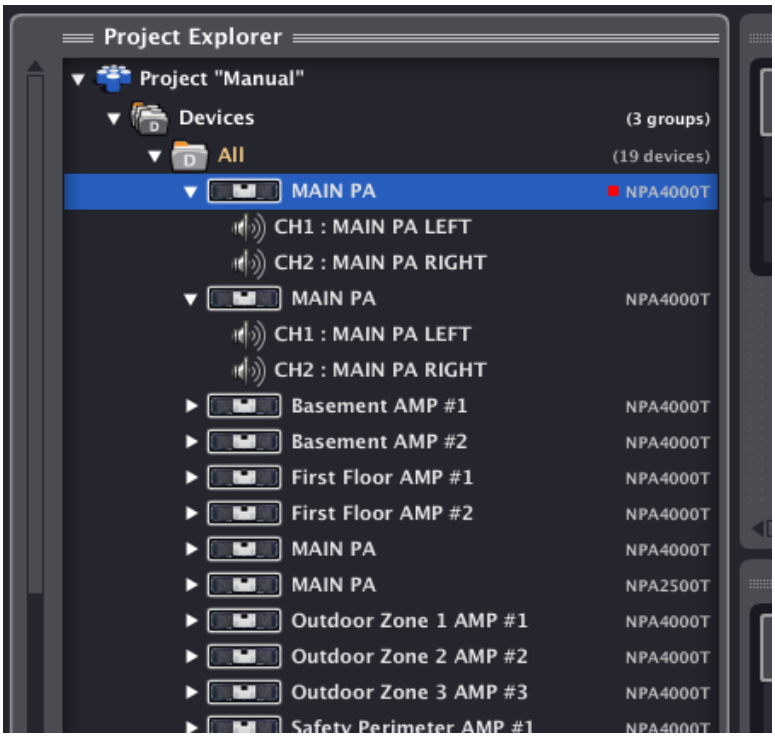
Up to 255 devices, each with a different IP address (in the range 10.5.5.1 – 10.5.5.255), could be part of this example network.

If you want to know your local network TCP / IP configuration, a simple method is to open the Windows command console (Start-> Run-> CMD) and to run **ipconfig /all** command. More information with the following link:
http://www.microsoft.com/resources/documentation/windows/xp/all/proddocs/en-us/ipconfig.mspx?mfr=true

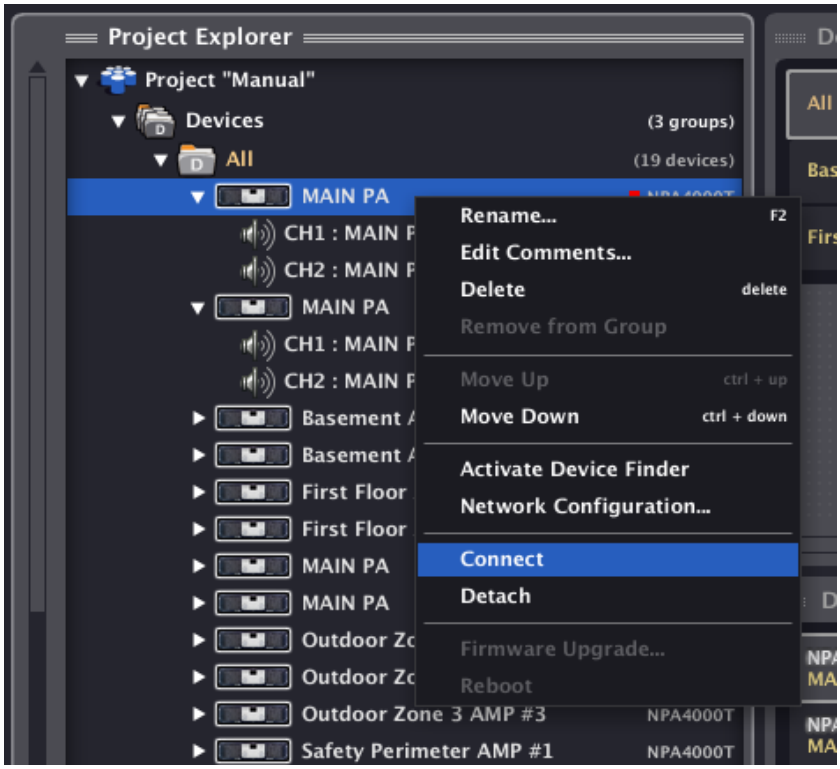
Note: *despite not supporting DHCP, EclerNet devices (and generally any device with static IP) can coexist with dynamic IP devices, as a DHCP server usually reserves a fraction of the addressing range for dynamic allocation and another fraction for static allocation.*

6. Connecting the device.

   Once a device has been identified (network parameters assigned), its connection status icon is lit in red.



In the device context menu, a new option is available: *Connect*.



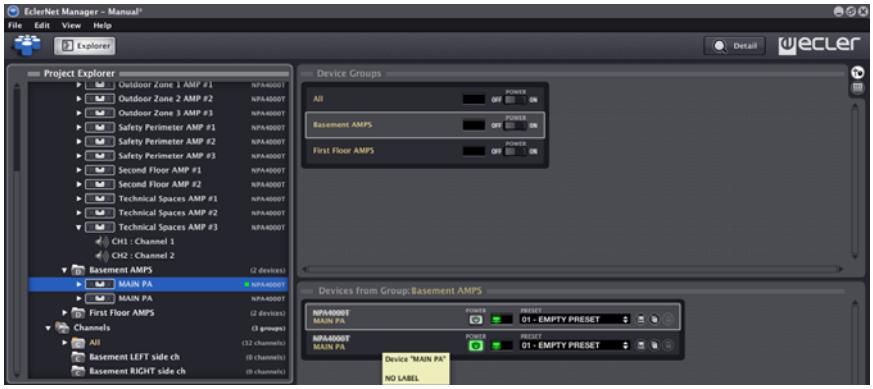
Selecting it opens the context menu window for the synchronization mode. From this window you must choose a synchronization mode for the device:

- send the current status of the Project virtual device to the hardware device or
- update the virtual device status in the Project with actual status of hardware device

Once connection has been established (blinking green connection icon), the device is removed from the "*Online and Unused Device List*" in *Project Explorer Helper.*

Once synchronized, the networked hardware device appears in EclerNet Manager with its green connection icon lit.

When a device is *online* and connected, all remote control and monitoring operations provided by EclerNet Manager can be performed, starting with the simplest, device powering up:



4.2. Customizing an EclerNet Project

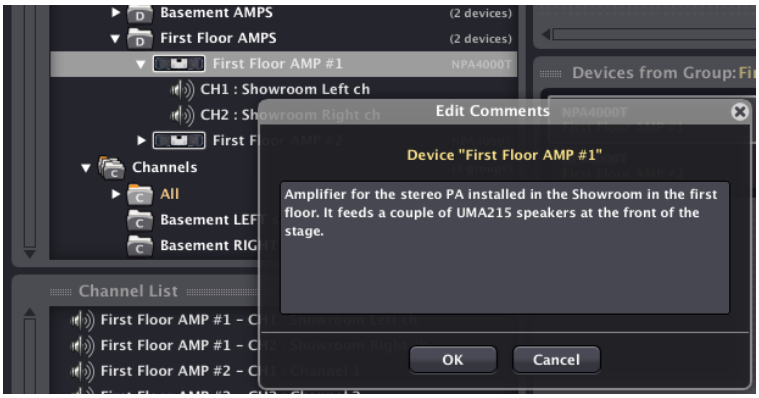
It is advisable to perform some customization tasks on the Project in order to facilitate understanding and subsequent handling, such as:

- Rename devices. The name given to a device when adding it to the Project may neither be particularly handy nor descriptive. You can later rename the devices to meet those necessities.

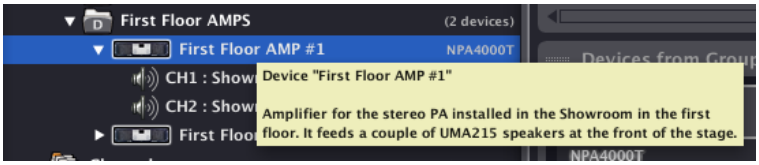
- Rename device or channel groups. Ditto as above.

- Rename device channels. All channels are displayed by default with the name “Channel 1”, “Channel 2”, etc. It's really handy to choose a name referring to the device they belong to or representing their functional role in the installation:

- Add/edit comments for devices, channel or device groups. The context menu for these items (*Edit Comments*) allows associating a short text as a comment.



Placing the cursor over an item displays the associated comment window.


First Floor AMPS
(2 devices)
First Floor AMP #1
NPA4000T
Device "First Floor AMP #1"
Amplifier for the stereo PA installed in the Showroom in the first floor. It feeds a couple of UMA215 speakers at the front of the stage.

- Define Project options such as e-mail notifications, users, passwords, etc.:

  See section: ***1.2. Edit Menu:*** *section "Project Users and Project Settings"*

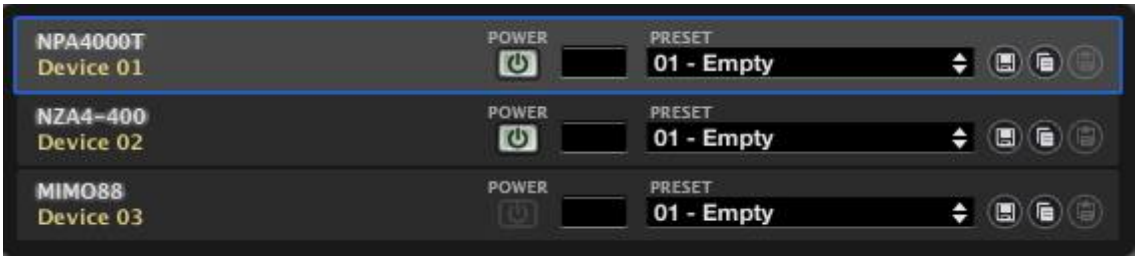
  Note*: Passwords are blank by default for new Projects and are not requested to open them later, unless you edited them with the previous option.*

- Save the Project.
  The *File -> Save* or *File -> Save As* menu entries allow the Project to be saved on your local hard drive or another storage device, keeping the same name and location (*Save*) or with the ability to change both (*Save As*).

5. ECLERNET PROJECT CONTROLS AND INDICATORS

5.1. Reduced view

The reduced view (*Detail* mode disabled) of a NPA, NZA or MIMO88 device has the following appearance:



There are a number of user controls and icons or indicators to monitor the device:

	Device model and name
	Device remote Power switch (not available for MIMO88)
	Status monitoring and alarms window. See **5.4 Table of status monitoring and alarm icons**
	Active *Preset* window: indicates the *Preset* (*) currently active in the device
	Presets management icons (**): • *Save Device Preset* (saves the current *Preset*) • *Copy Device Preset* (copies the current *Preset*) • *Paste* Device Preset (pastes the previously copied *Preset* to another *Preset*)

(*) A *Preset* is a snapshot of all the device settings at the time of saving: input selection, volume, EQ DSP, compressor settings, etc. For MIMO88, you can select which parts of the configuration will be stored in a given *Preset*:

Only those parts of a *Preset* will overwrite existing device settings when recalling this *Preset*, other MIMO88 parameters and settings won't be affected. For example, if only the *Matrix* is enabled when you save a *Preset*, the future recall of this Preset will overwrite the state of the M88 matrix only (crossing points between inputs and outputs, enabled or not, and their levels), without affecting any other setting (inputs, outputs, Pagers/Duckers, remote control enabling and link groups of the matrix, etc.).

Presets management is especially useful when a device has to behave differently at different times and/or for different applications without manually and individually editing its configuration.

(**) With *Presets* management, you can:

- Save a *Preset* with a specific name in the list of potential *Presets* of a device.
- Copy a *Preset* to a temporary memory
- Paste to a destination *Preset* the contents of another *Preset* previously copied in the temporary memory, in the same or another compatible device. This is especially useful when trying to clone *Presets* from one device to another or when you want to create a *Preset* by modifying an already existing one.
  When performing the pasting operation, all the content is pasted except the Preset name to be defined at the time of saving.
- Save a *Preset* on hard disk (right-click + *Save Preset to file...)*
- Load a *Preset* from hard disk (right-click + *Load Preset from file...)*

5.2. Detailed view

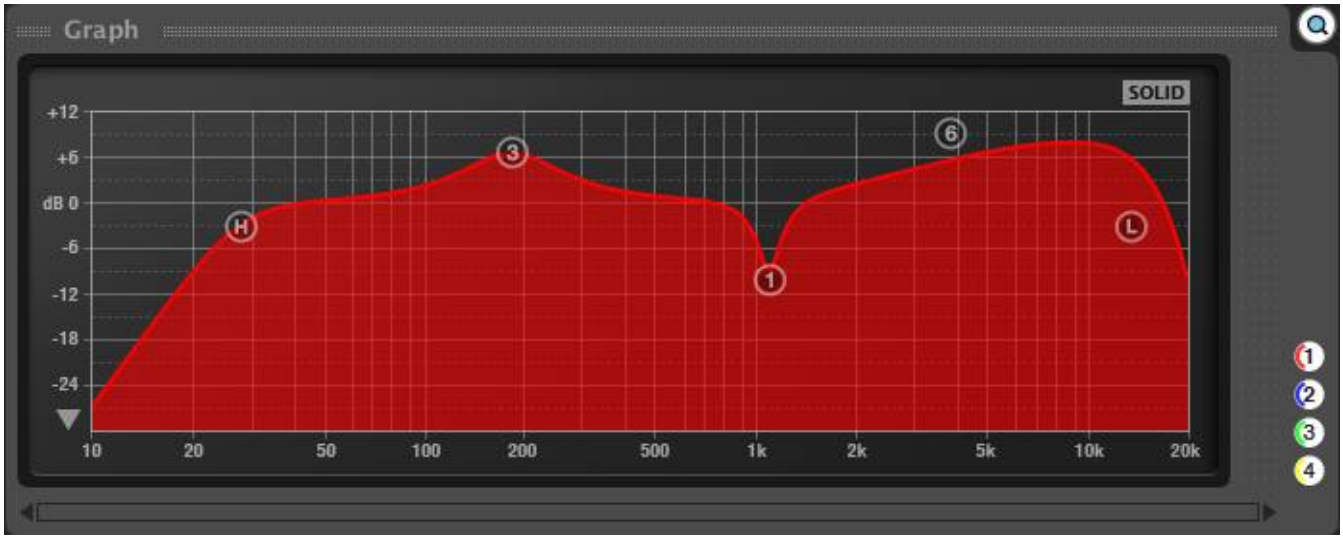
The detailed view (*Detail* mode enabled) of a NPA device has the following appearance:

For **NZA** series amplifiers, the aspect is slightly different:

In case of a MIMO88 digital matrix:

Detailed views of different EclerNet devices are extensively documented in chapters 6 and 7 of this manual.

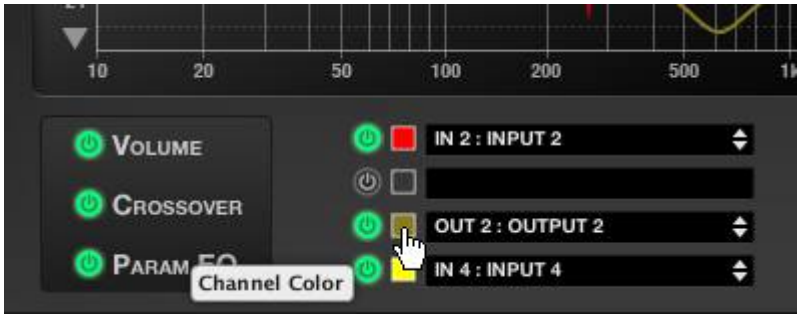
Additionally, and for all EclerNet devices, by clicking on the *Show / Hide Graph* icon (bottom right corner of the screen), you can display the window with frequency response curves resulting from DSP processing for equalization and *crossovers* applied to the device channels (see DSP processing section).

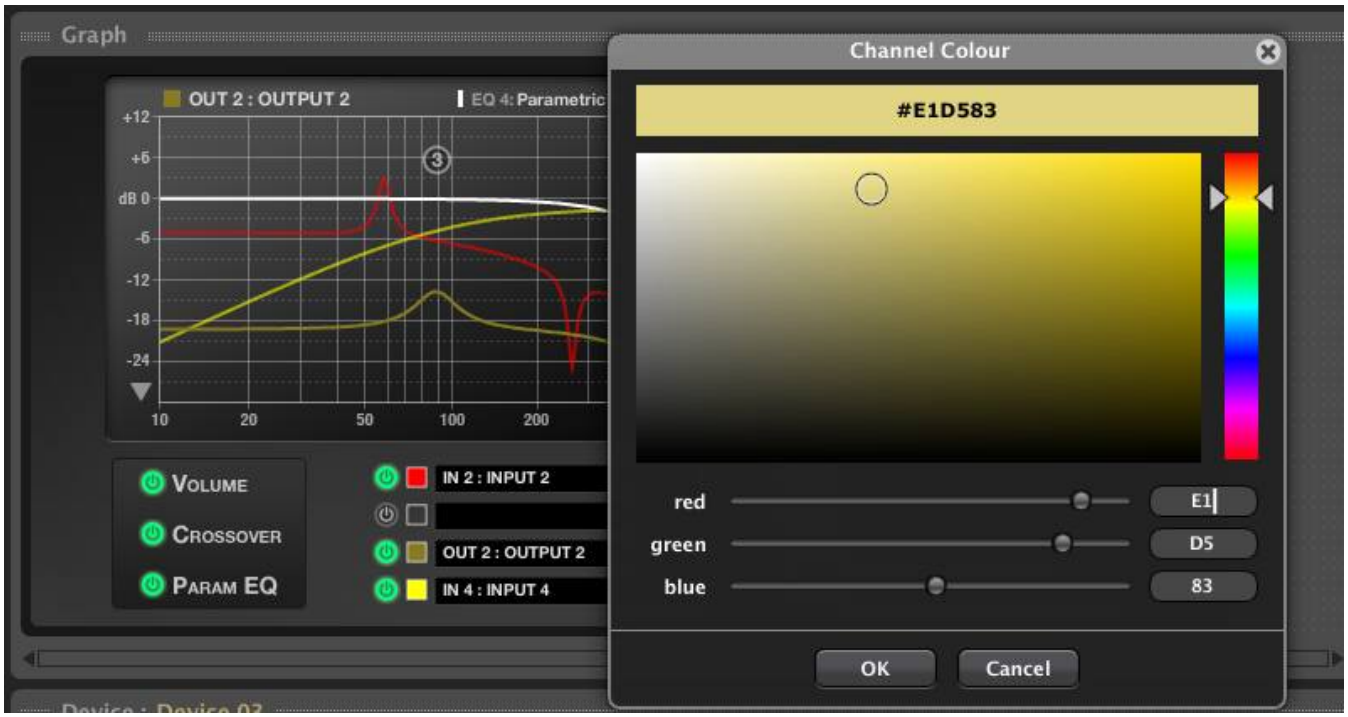


Examples of graphical panel respectively for NZA amplifier and MIMO88 matrix

In the graphical window for NPA and NZA series, the numbered icons located in the lower right corner allow you to activate/deactivate the graphical display for the device channels identified by the colour code of their own icons (red : Channel 1, Blue: Channel 2, etc.).

In the case of MIMO88, you can select which input or output channels are displayed, what colour will appear in the chart (double-click on *Change Colour* icon), and even have a summary of the selected filter parameters (in the upper band of the window).





The graph displays the frequency response using a frequency X axis (logarithmic, in Hz) between 10 and 20,000 Hz, and a gain Y axis (in dB) between +12 dB and –30 dB, or between +12 dB and –72 dB (depending on the status of the Vertical Range button, located in the lower left corner of the graph).

Vertical range:
This control, located in the lower left corner of the graph, allows you to choose between two different ranges of values for the graph Y-axis (gain in dB).
When the button has a pointing down triangle shape, the gain range is between +12 dB and –30 dB. When the button has a pointing up triangle shape, the gain range is between +12 dB and –72 dB.

The curve can be displayed as solid (filled) or as contour line only (outlined), depending on the *SOLID* button status.
Only one of the available channels is selected as active. The active channel is displayed with greater intensity than the rest, which appears semi-transparent. Channel selection is done by clicking with the mouse on the desired device channel's panel.
If the MUTE function of any channel is activated, this channel graph is represented as a horizontal line at the bottom of the chart.
Only one of the filters in the active channel is considered as the active filter in the graph. This filter individual response is represented with a white line. The filters selection is done by clicking on the panel where the targeted filter controls are displayed. For parametric equalization, individual selection of each of the filters is done through numerical identifiers in the control panel (from 1 to 8).

The active channel filters whose type is not *Bypass* are represented in the graph as circular markers. The low-pass *crossover* is labelled "L", the high pass *crossover* is labelled "H", and parametric filters have a numerical identifier, from 1 to 8.

The graph allows interactive editing of the filters parameters using their markers. To do this, you just have to point the mouse on the filter marker you want to edit, to click on it and drag it on the surface of the chart while holding the button pressed.
The active filter marker is displayed with greater intensity than the others (which appear semi-transparent) and shows an animation with arrows indicating the available moving directions; *crossovers*, for example, can only be moved horizontally (*Frequency* parameter), while *High-Shelf, Low Shelf* filters and *Parametric EQ* can move horizontally (*Frequency* parameter) and vertically (*Gain* parameter).
For filters with a Q parameter (*Parametric EQ*, *All-Pass order 2*), Q value may also be edited through graphic markers using the mouse wheel.

Filled curves (Solid):
This other control, located in the lower right corner of the graph, allows you to select the option to fill the chart or not.

A black *SOLID* word over a white rectangle means the graphic curve is filled. A white *SOLID* word over a black rectangle means the graphic curve is only outlined.

5.3. Types of control

The detailed view of an EclerNet device contains various types of user controls, which allow you to adjust parameters for DSP processing. The main types of controls are:

5.3.1. Adjustment potentiometers

To rotate a potentiometer, place the mouse cursor over it, left click, hold the mouse button and drag up (or right) to rotate clockwise or down (or left) to rotate counter clockwise.

You can also change a potentiometer value by hovering over with the mouse, pressing the left mouse button and turning the mouse wheel.

Double-clicking a potentiometer will reset it to the default position (depending on the parameter).

5.3.2. Channel *Fader*

The *fader* is a graphic sliding control. To move the fader, point the mouse cursor on it, left click, hold the mouse button and drag up or down.

You can also change a *fader* value by hovering over with the mouse, pressing the left mouse button and turning the mouse wheel.

Double-clicking it will restore the default position (0 dB).

5.3.3. Buttons

All buttons operate the same way: to activate a button, you should point the mouse cursor on it, press and release the mouse left button.

5.3.4. Selectors

Some parameters must be chosen with selectors from a list of available values. These controls are identified by their double arrow pointing up and down on their right side.
To select a new value in the list, click the control with the mouse and a list of all available values will appear. Select the new value with the mouse by left click on it. The list will close and the new element will appear selected in the control.

5.3.5. Numerical values

Some of the above controls have an associated display showing the numerical value. These displays can also be used to edit the parameter value.
To edit a numerical value, you just have to place the mouse cursor over it and left click. Automatically, the control enters edit mode allowing typing the desired value (only numbers without units).

Pressing the ENTER key will update the associated control value. Pressing the ESC key will cancel the editing and keep the previous value.

Double-clicking some controls will reset them to their default position.

5.4. Table of status monitoring and alarm icons

Icons indicating the status of any system function or any alarm triggering appear in different windows:

	Device disconnected. Steady red: the device has been manually disconnected (with *Disconnect* option). Blinking red: EclerNet Manager tried to connect to the device, but this one is not available.
	Device connected. Blinking green. The device is correctly connected to EclerNet Manager.
	Device connected and synching. The device is establishing the connection to EclerNet Manager.
	Device connected with warning. The device is connected, but there is a problem. If the icon is displayed in a device status area, then another icon indicates the kind of problem (*invalid EclerNet protocol version*, *unsynched*, etc.). If the icon is displayed in a channel status area, it's indicating a problem with the device (it is recommended to consult the device status area for more information).
	Invalid EclerNet protocol version. The current version of EclerNet Manager does not allow its connection to networked devices (Version mismatch between *software* and *firmware*). Therefore no connection can be established, but it is possible to upgrade the *firmware* from *Project Explorer Helper*.
	Invalid password. The password entered in the device is incorrect.
	Device unsynched. The two icons are alternatively displayed. *Hardware* content (state, presets ...) does not match the device content in EclerNet Manager.
	Device powered. The device is switched on (*POWER ON*).
	Channel protect alarm. The electronic protection alarm is activated for the channel. It lights up for a few seconds during the boot sequence and it's normal.
	Channel thermal alarm. The thermal protection alarm is activated for the channel.
	Channel load alarm. The impedance load protection alarm is activated for the channel.
	Device mains voltage alarm. The AC power voltage alarm is activated for the device.
	Device system error. Device error alarm (some component inside the device is malfunctioning)
	Device system fault. Device malfunction alarm (blown fuse, protection system permanently triggered, etc.). This alarm appears along with a *fault* window in the device LCD.
	Slave link fault. MASTER-SLAVE connection between two MIMO88s is not valid (physical link between the LINK BUS connector on the back panel of both MIMO88 units and crossover CAT5 cable). Possible Causes: • Connection is lacking or is defective The rear panel switch of the SLAVE unit is not on **SLAVE** position
	Invalid Slave version. *Software - firmware* version mismatch in the SLAVE unit of a pair of MIMO88s.

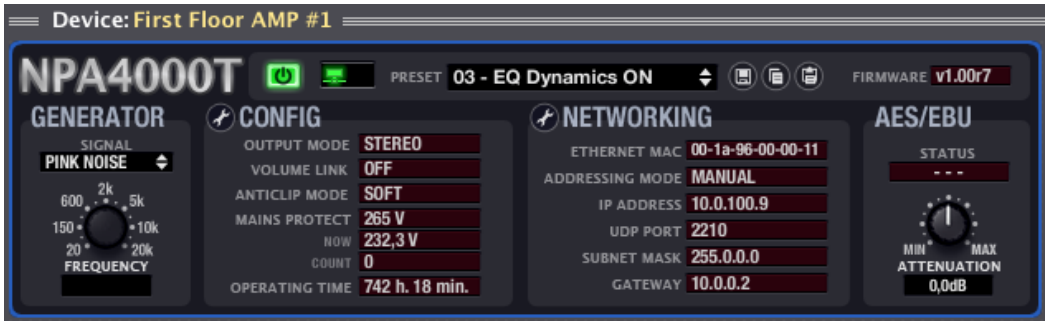
***Note**: some of these icons are device dependent, being only available for some series and/or models.*

6. EclerNet COMPATIBLE DEVICES, part I: NPA and NZA series amplifiers

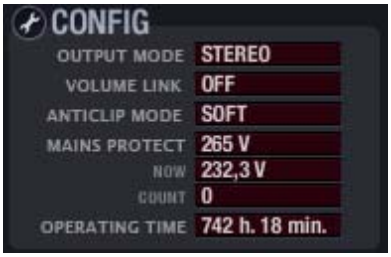
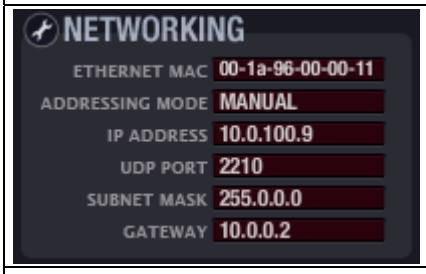
6.1. NPA and NZA series detailed view

6.1.1. NPA series detailed view

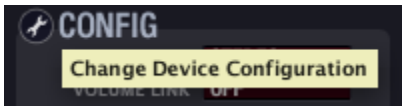
The top section of the detailed window provides the following items:



	Device model and name
	Device power switch
	Status monitoring and alarms window. **See 5.4 Table of status monitoring and alarm icons**
	Active *Preset* window: indicates the *Preset* currently active in the device (See section: **5.1. Reduced view**)
	Presets management icons: *Save Device Preset* (saves the current *Preset*) *Copy Device Preset* (copies the current *Preset*) *Paste Device Preset* (pastes the previously copied *Preset*) (see section: **5.1. Reduced view**)
	Unit's *firmware* version
	Internal signal generator offering pink noise, white noise, sine wave and polarity check, with frequency adjustable between 10 and 20,000 Hz

	Device configuration. See (1)
	Network parameters configuration. See (2)
	Digital AES/EBU input: a VALID message is displayed when a valid AES/EBU signal is input in the device. Provides a ±12 dB *trim* adjustment

(1) Device configuration.
Clicking on the configuration edit icon opens the parameter setting window:

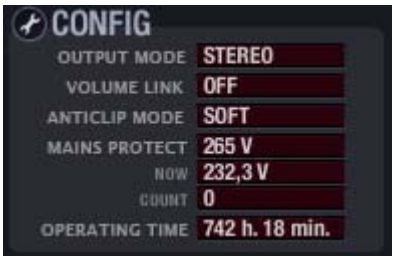


For a NPA Series amplifier, adjustable parameters are:

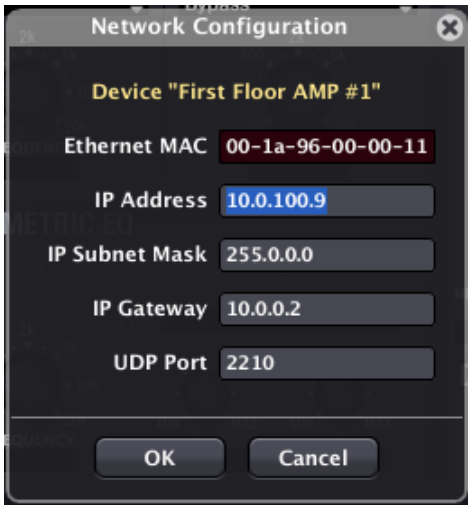
- *Output Mode*: STEREO/BRIDGE/PARALLEL.
  Selects the operating mode of the device amplified outputs: stereo, bridged or parallel (see the *hardware* NPA Series owner's manual).
- *Volume Link*: ON/OFF.
  Determines if both channels' volume controls of an amplifier are linked (ON) or independent (OFF).
- *Anticlip Mode*: SOFT/MID/HARD.
  The protection system against saturation can operate in SOFT, MID, or HARD mode.
- *Maximum Mains Voltage*: 200 to 280 V AC (version for 230 V AC nominal voltage.)
  Determines the AC mains voltage threshold above which overvoltage occurs.

- *Enable Mains Voltage Alarm*:
  Determines whether threshold exceeding should trigger or not a system alarm.

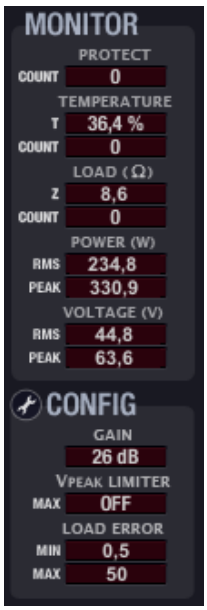
  The window hereunder shows the adjustments made, the real time reading of the voltage (*NOW*), the number of times it exceeded the threshold (*COUNT*) and the cumulative operating time of the device (*OPERATING TIME*):

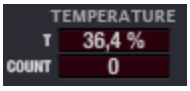
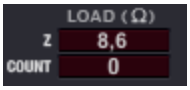
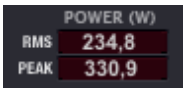
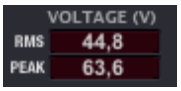


(2) Network parameters configuration.
  Exactly the same window and same parameters than those available with *Network Configuration* in the device context menu:



See section **4.1. Creating an EclerNet Project** for more details.
The lower right section of the device channel window presents the following appearance for NPA Series:



	Counter for the number of times the device protection alarm has been triggered
	Heat sink internal temperature meter (in % of alarm triggering threshold) Counter for the number of times the device temperature alarm has been triggered
	Load impedance at the device terminals (1) Counter for the number of times the device load impedance alarm has been triggered
	RMS power meter at the channel output terminals Peak power meter at the channel output terminals
	RMS voltage meter at the channel output terminals Peak voltage meter at the channel output terminals
	Channel configuration. See (2)

(1) The real time measurement of load impedance and the activation of the relevant alarm are affected by the functional state of *hardware* and the installation cabling load (in case of crossing or open circuit in a speaker line, faulty amplifier, etc.), as well as by some audio program and volume transients produced over the time.
This may generate occasional measurement inaccuracies, leading to a false alarm triggering:

It is important to note that the load impedance alarm triggering can be due to a combination of temporary factors which are not abnormal in the installation. Check after triggering if the triggering condition is maintained over time, i.e. whether it is a false alarm or a true one requiring maintenance.

(2) Channel configuration.

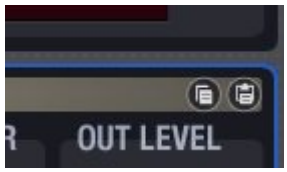
Clicking on the configuration edit icon opens the parameter setting window:

For a NPA Series amplifier, adjustable parameters are:

- Amplifier total *Gain*: 26 / 32 / 38 dB
- *Vpeak Limiter Threshold*: maximum peak output voltage to which the equipment limiter reacts.

40 to *119 V*/OFF for NPA4000T
40 to *99 V*/OFF for NPA2500T

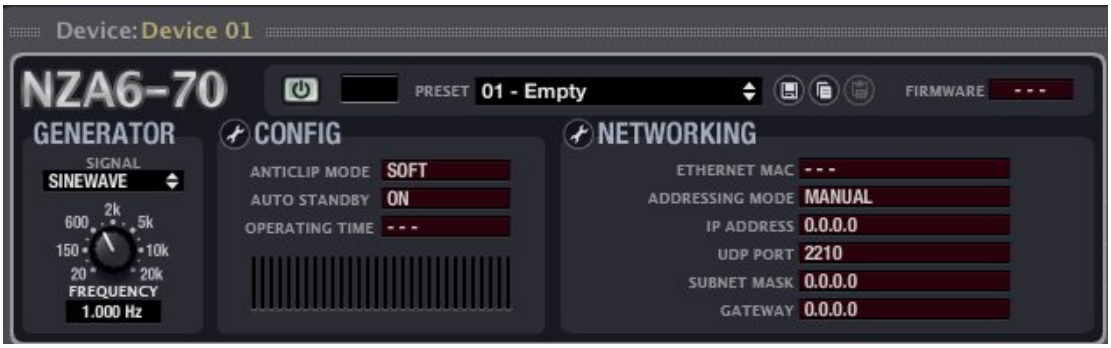
- *Maximum Load/Minimum Load*: between 0.2 and 100 ohms. Load measurement range outside which the load impedance alarm (LOAD) is triggered and counted (COUNT).
- *Enable Load Alarm*:
  enables/disables the triggering of the load impedance alarm.



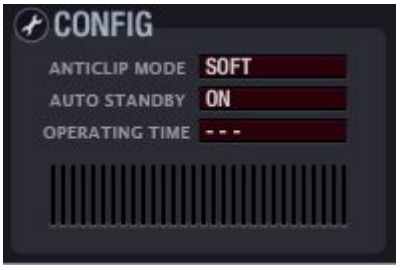
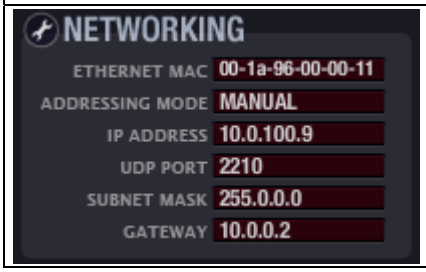
Additionally, there are two icons named "*Copy Channel Data*" and "*Paste Channel Data*" in the control window of each device channel (upper right part).
Clicking on "*Copy Channel Data*" in a channel (source channel) stores all parameters in a temporary memory.
Clicking on "*Paste Channel Data*" in a channel copies in the destination channel the parameters stored temporarily during the last "Copy Channel Data" operation, configuring the destination channel like the source channel.

6.1.2. NZA series detailed view

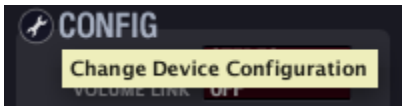
The top section of the detailed window provides the following items:



	Device model and name
	Device power switch
	Status monitoring and alarms window. **See 5.4 Table of status monitoring and alarm icons**
	Active *Preset* window: indicates the *Preset* currently active in the device (See section: **5.1. Reduced view**)
	Presets management icons: *Save Device Preset* (saves the current *Preset*) *Copy Device Preset* (copies the current *Preset*) *Paste Device Preset* (pastes the previously copied *Preset*) (See section: **5.1. Reduced view**)

	Unit's *firmware* version
	Internal signal generator offering pink noise, white noise, sine wave and polarity check, with frequency adjustable between 10 and 20,000 Hz
	Device configuration. See (1)
	Network parameters configuration. See (2)

(1) Device configuration.
Clicking on the configuration edit icon opens the parameter setting window:



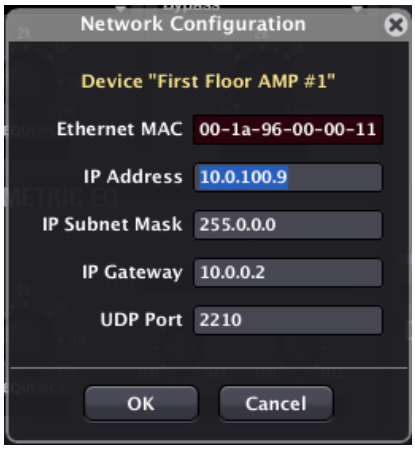
For NZA series amplifiers, adjustable parameters are:

- *Anticlip Mode*: SOFT/MID/HARD.
  The protection system against saturation can operate in Soft, Mid or Hard mode.
- *Auto-Standby Mode*: ON/OFF. Enables/disables the automatic sleep mode (low-consumption) when no input signal is detected in any channel of the amplifier.

  The next window shows the status of the adjustments made, as well as the number of accumulated operating hours of the device (*OPERATING TIME*):

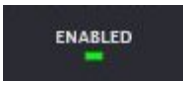
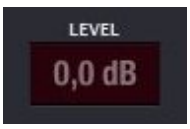
(2) Network parameters configuration.

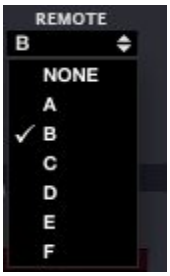
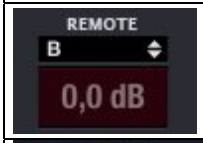
Exactly the same window and same parameters than those available with the *Network Configuration* option from the device context menu:



See section: **4.1. Creating an EclerNet Project**

The lower right section of the device channel window presents the following appearance for NZA Series:

	Presence signal indicator (green) at the channel input
	Reading of the channel's volume control position on the **hardware** front panel. The position of this hardware control is a part of amplifier *hardware* and is not remotely adjustable from EclerNet Manager application. It determines the maximum signal level coming out from this amplifier channel output (0 dB means no attenuation or, which is equivalent, maximum volume).

	VCA port selector for remote control of channel volume, with a total of 4 or 6 ports, depending on the NZA amplifier model. Connecting for example a potentiometer to the VCA port of a channel of the amplifier allows you to remote control its volume. The maximum volume of a channel, whether it is assigned to a VCA port or not, will always be determined by the position of its hardware volume control (see previous section, LEVEL). ***Note**: a same VCA port can be assigned to several amplifier channels for a simultaneous remote control of all assigned channels.*
	Metering of the control voltage detected at the selected VCA port (port B in the example). The metering is proportional to the volume control applied to the channel: 0 dB indicates maximum volume (zero attenuation due to VCA remote control).
	Channel configuration. See (1)

(1) Channel configuration.

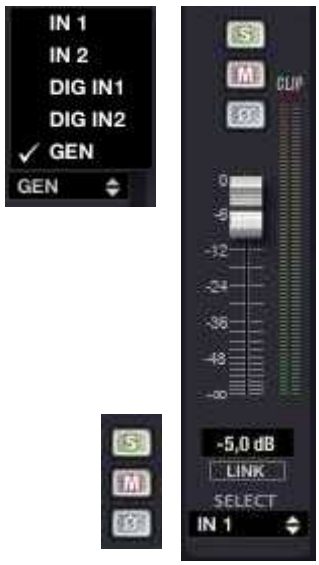
Clicking on the configuration edit icon opens the parameter setting window:

For NZA series amplifiers, adjustable parameters are:

- Amplifier total *Gain*: 26 / 32 dB
- *Output Mode*: SINGLE / BRIDGE / PARALLEL.
  In SINGLE mode, a channel is absolutely independent of the other amplifier channels for all settings (input selection, volume, EQ, compressor settings, etc.). In this mode, each channel has its own control window in EclerNet Manager.
  In BRIDGE and PARALLEL modes, channels are linked, set and controlled by pair, appearing in software as a unique control panel for each pair of linked channels. Possible pairs are always made of consecutive channels: 1&2, 3&4, 5&6 (depending on NZA device, whether 4 or 6 channels).
- *Compressor Mode*: COMPRESSOR /VPEAK LIMITER (voltage peak limiter).
  It determines how the GUI of the channel compressor will look, with a choice between the aspect of a classic compressor and a voltage peak limiter for the output signal of the amplifier (see section **6.6. COMPRESSOR**).

6.2. INPUT

The input section contains the following controls:



- SELECT allows you to select this channel input amongst available sound sources:
    - IN1 / IN2, etc.: amplifier's analog input 1, 2, etc. (and also IN1+2, IN3+4, etc., for NZA series)
    - DIG IN1 / DIG IN2: amplifier's digital input 1 or 2 (available in NPA series)
    - GEN: internal generator signal, controlled from the *GENERATOR* panel.

- LINK: links channels for simultaneous operation (available in NPA series)
- VOLUME: channel volume, adjustable between –infinity and 0dB. There are two Vu meter-type level indicators to the right of the channel *fader*: the left bar displays the input signal level and the right one the channel output signal level after processing.
- SOLO: mutes all device channels except those with SOLO function enabled.
- MUTE: mutes this channel audio signal.
- INVERT: allows the input signal phase to be inverted (180 degrees shift).

6.3. CROSSOVER

The *CROSSOVER* section contains the FILTER *TYPE* and *FREQUENCY* parameters for each of the two filters (low-pass and high-pass) composing the *crossover*. It splits the audio frequency spectrum in two parts, creating the two bands usually used in two-way speakers.

- FILTER *TYPE*: allows you to select the *crossover* filter type. You can select one of the following filter types.
    Butterworth 6, 12, 18 or 24 dB/oct
    Bessel 12, 18 or 24 dB/oct
    Linkwitz-Riley 12 or 24 dB/oct

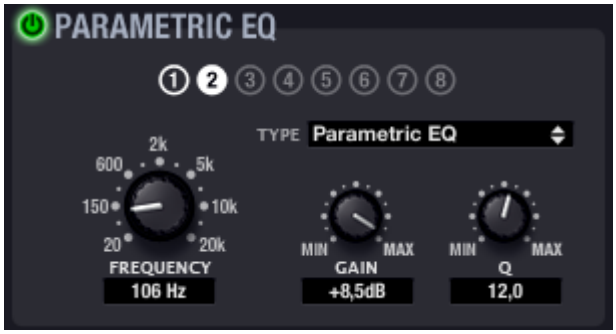
- FREQUENCY: is made of a potentiometer and a numerical value to adjust the filter cut-off frequency within the 20 Hz - 20 kHz range.

6.4. PARAMETRIC EQ

This section groups the eight parametric filters available per channel, very useful for a precise correction of the frequency response.

Available parameters are described below (the parameters are always displayed for one of the 8 filters, the one with its numeric indicator filled in white, as filter #2 in the image):

- *ON/OFF*: turns on/off the parametric EQ, affecting all filters from this section. When the value is OFF (top left button greyed out), there is no filter processing (all filters are bypassed). In the opposite case (green button), operation is determined by the other parameters.
- FILTER *TYPE*: type of filter used. You can select one of the following filter types (adjustable controls for each filter type are shown between brackets):
  - *Bypass:* filter not used.
    Parametric EQ (*FREQUENCY, GAIN, Q*): classic parametric equalizer filter with adjustable central frequency (between 20 Hz and 20 kHz), gain or attenuation at central frequency (between +12 dB and -60 dB) and bandwidth (1/Q, Q between 0.3 and 200).
  - *Low-Shelf* and *High-Shelf* with a 6 or 12 dB/oct slope (*FREQUENCY, GAIN*): shelving type filters with adjustable cut-off frequency (between 20 Hz and 20 kHz) and gain or attenuation (between +12 dB and –60 dB).
  - *Low-Pass* and *High-Pass* with a 6 or 12 dB/oct slope (*FREQUENCY*): these are low-pass and high-pass filters with adjustable cut-off frequency (between 20 Hz and 20 kHz).
  - *All-Pass order 1 and 2* (*FREQUENCY, Q* in order 2): all-pass filters that do not affect the signal amplitude, but the phase at certain frequencies (in contrast with delay, which changes phase at all frequencies). This type of filter is mainly used to compensate for phase errors in speakers or other causes, such as phase shifts introduced by the *crossover*.



6.5. COMPRESSOR

The compressor section offers a processing of the input signal dynamic behaviour, allowing the output intensity to be controlled not to exceed certain levels. Available settings are:

- *ON/*OFF: turns the compressor on/off (green button/grey button). When in OFF mode, the rest of the section controls are disabled.
- *THRESHOLD*: compression threshold. Composed of a potentiometer and a numerical value, and used to specify the input signal level at which compression begins to occur. This parameter ranges from +18 dB to –36 dB.
- *RATIO*: compression ratio. It also includes a potentiometer and its associated numerical value. This parameter determines the output volume reduction ratio when the input signal level rises above the threshold. A value of 1:1 states that the signal level does not undergo changes, while the extreme value of inf:1 represents a signal limiter, with which any signal above the threshold will be limited to that threshold level.
- *ATTACK* (potentiometer and numerical value): attack time. Determines the time the compressor takes to respond when the input level rises above the threshold. The range extends from 0.1 ms to 500 ms.
- *RELEASE* (potentiometer and numerical value): determines how quickly the compressor stops operating once the signal input level drops below the threshold. In this case, the range covers from 1 ms to 5 s.

Correctly setting compressors' *ATTACK* and *RELEASE* times is not an easy task: too short release or attack times result in excessive and perceptible low frequencies distortion; on the other hand, too long times could make a limiter useless if damages already occurred before limitation starts.
In order to help you to correctly set these values, the *AUTO* parameter automatically select *ATTACK* and *RELEASE* values, using the *crossover* high-pass filter cut-off frequency as internal reference.

When *AUTO* is enabled, *ATTACK* and *RELEASE* controls editing is disabled, but used values are still displayed.

Additionally, some devices (NZA series) can display the compressor function in voltage peak limiter mode, changing the GUI appearance, as shown in the attached image.

In this mode, the limiting threshold appears in volt units and *RATIO*, *ATTACK* and *RELEASE* controls are disabled.

6.6. DELAY

The *DELAY* section allows you to set an independent delay time for each channel, which is applied between input and output.
The delay time can be specified in different units, selected with *UNITS* parameter. Available units are milliseconds, seconds, centimeters and meters. *DELAY* can be set between 0 and 1000 milliseconds.

To avoid weird and annoying noises in the output signal, the value change made with the *DELAY* potentiometer is not effective until the mouse button is released. At that time audio will be temporarily muted (for a variable time, depending on the delay value used) for the new setting to be effective.

6.7. Copying and pasting settings between channels

Copy Channel Data and *Paste Channel Data* icons ( ), located in the upper right corner of the control panel of each device channel, are used to copy all settings from one amplification channel in a temporary memory and paste them in another amplification channel.

Considerations:

- Channel copying and pasting can be done within a single device or from a device channel to a channel of another device
- In the latter case, copying and pasting operation can only be made between channels of the same device series (you cannot copy a channel from a NPA amplifier and paste it into a NZA amplifier, or vice versa)
- To clone the full configuration of all channels from one device to another, use *Copy Device Preset* and *Paste Device Preset* from the icons to the right of the preset name in the upper section of the device configuration

7. EclerNet COMPATIBLE DEVICES, part II: MIMO88 digital matrix

7.1. MIMO88 introduction

The MIMO88 is a digital audio matrix, with 8 inputs and 8 outputs (+ 2 additional monitoring outputs), expandable to 16 inputs/16 outputs by linking a second MIMO88 unit.

MIMO88 programming is done with EclerNet Manager, either via a CAT5 point-to-point connection (directly from computer to MIMO88) or from a remote point of the Ethernet network it is linked to.

Remote management for MIMO88 and in general for any compatible EclerNet device (as NZA or NPA amplifiers) can be done in the following ways:

- with EclerNet Manager, either via a CAT5 point-to-point connection (directly from computer to MIMO88) or from a point of the Ethernet network it is linked to
- from EclerNet clients of Ethernet Manager or UCP (User Control Panel): several simultaneous web clients, each with its own custom graphic control panel, and EclerNet Manager acting as a web server. EclerNet Manager allows you to create such control panels in a very simple and intuitive manner
- from external "*third-party*" control devices (Crestron®, AMX®, Extron®, VITY®, Medialon®, RTI®, etc.), using for this the **TP-NET** Ecler communication protocol integrated in MIMO88 (and also in NZA and NPA amplifiers)

With EclerNet Manager you can configure the MIMO88 for all types of audio processing tasks (DSP or *Digital Signal Processing*) on incoming signals, such as:

- matrix router-mixer with adjustable level for the matrix crossover points, giving a separate mix of different inputs for each output
- mono or stereo channel processing
- level control, mute, vu-meters and phase adjustment for inputs and outputs
- internal signal generator (sine wave, pink noise, white noise, polarity test)
- parametric EQ on inputs and outputs
- "*crossover*" filters on outputs
- delays on inputs and outputs
- noise gate/compressor on input channels
- limiter on outputs
- input channel priority assignment (*ducking*)
- virtual and physical messaging consoles (*paging*)
- automatic mixer

As control inputs and outputs for hardware devices, the MIMO88 features:

- 8 GPI inputs (*General Purpose Input*), 0 – 10 VDC, connectable to external devices such as contact closures, potentiometers, ECLER WP series panels, 0 - 10 VDC power supply, etc. See section: **7.9. MIMO88 GPIs/GPOs section**
- 8 GPO outputs (*General Purpose Outputs*), as NC/NO relays. See section: **7.9. MIMO88 GPIs/GPOs section**

GPIO inputs and outputs can be programmed to trigger some functions of the MIMO88, such as:

- recall a *Preset* with an external contact closure
- activate/deactivate a MUTE control with an external physical switch
- set a volume from an external physical control such as a WP Series panel or a potentiometer
- activate a GPO

It is also possible to combine different triggers according to a boolean logic operator to trigger a particular function. Example: if you close a contact connected to GPI1 and a contact connected to GPI2, *Preset*#3 is recalled (Boolean operator AND applied to GPI2 and GPI1 inputs).
Similarly, GPO outputs can be programmed to react to certain triggers and may thus control external devices such as light indicators, audio/video players, lights, motors, electrical circuits, etc.
For more information about GPIs and GPOs, see section: **7.12. MIMO88 EVENTS section** which also includes the management of events triggering based on a calendar.

Additionally, MIMO88's rear panel provides two connectors for Ecler digital control bus (ER-Bus): REMOTE 1 and REMOTE 2. This control bus is compatible with Ecler digital devices for remote control such as:

- WPTOUCH: programmable digital touch panel (to select sound sources or *Presets* and adjust volume and MUTE)
- MPAGE16: digital touch console for real time voice messaging or "paging"

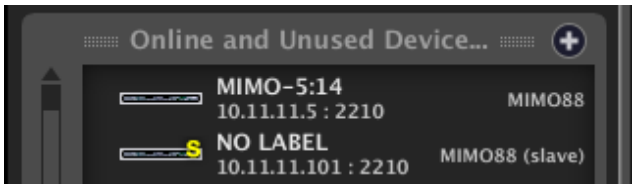
See sections: **7.8. MIMO88 PAGERS/DUCKERS section**, **7.10. MIMO88 REMOTES section** and **7.12. MIMO88 EVENTS section**.

For more information about MIMO88's *hardware*, refer to the product manual.

7.2. 8x8 and 16x16 setups

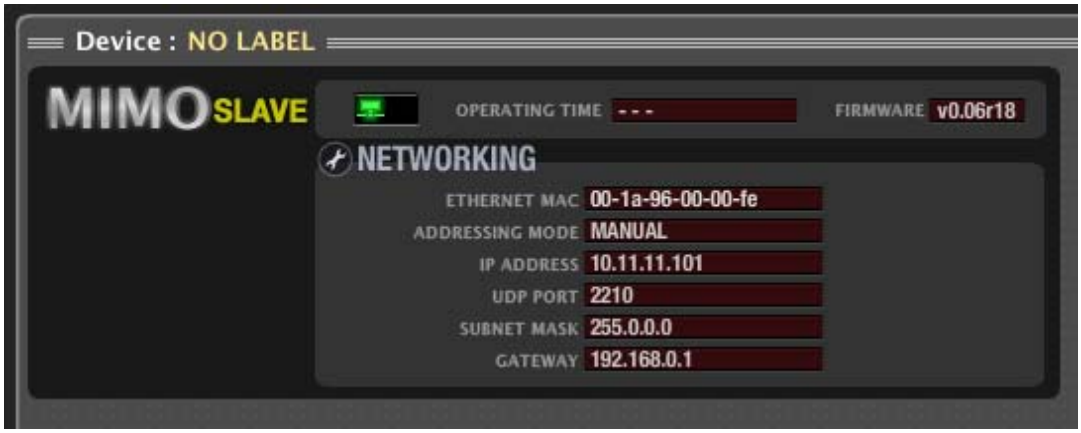
Individually, a MIMO88 unit is a 8x8 audio matrix, i.e. with 8 inputs and 8 outputs. In a configuration with two MIMO88s connected by LINK BUS in MASTER-SLAVE mode, the couple is behaving for all purposes as a single matrix with 16 inputs and 16 outputs. In that case it is important to note the following points:

- the *hardware* MASTER / SLAVE switch of the back panel must be set before powering on, one unit set in MASTER position and the other in SLAVE position
- for *software* settings with EclerNet Manager, you have to configure the MASTER unit in 16x16 mode. See section **7.4. MIMO88 general section**
- the physical link between the two units is a CAT5 crossover cable (**IMPORTANT: this linking CAT5 cable must be a crossed cable**), point-to-point (i.e. directly between LINK BUS ports of both units and without any type of intermediate *hardware*, such as Ethernet *switches* or *routers*, etc.) and with a maximum length of 100 meters. This link connects the two units for all purposes: digital audio and control signals
- it is important to select the 16x16 operating mode from the start of the configuration tasks of a new EclerNet Project. Such adjustment shall be made from the CONFIG section of the MASTER MIMO88 detailed view. Configuration changes when switching from 16x16 to 8x8 mode or vice versa can lead to the loss of any settings made for system programming.
- all programming and remote control of the couple is done from EclerNet Manager on the MASTER unit, showing all functions of the resulting 16x16 matrix (16 inputs, 16 outputs, 16x16 matrix, 16 paging zones, etc.).
- The SLAVE unit doesn't need not be included as a device in the Project, nor to be connected to the network via its Ethernet port since it is totally controlled by the link to your MASTER unit
- if you connect both units (MASTER and SLAVE) to the network, the application will detect and display them in the *Project Explorer Helper* (*Online and Unused Devices*) as “MIMO88” and “MIMO88 (*slave*)”, respectively MASTER and SLAVE .

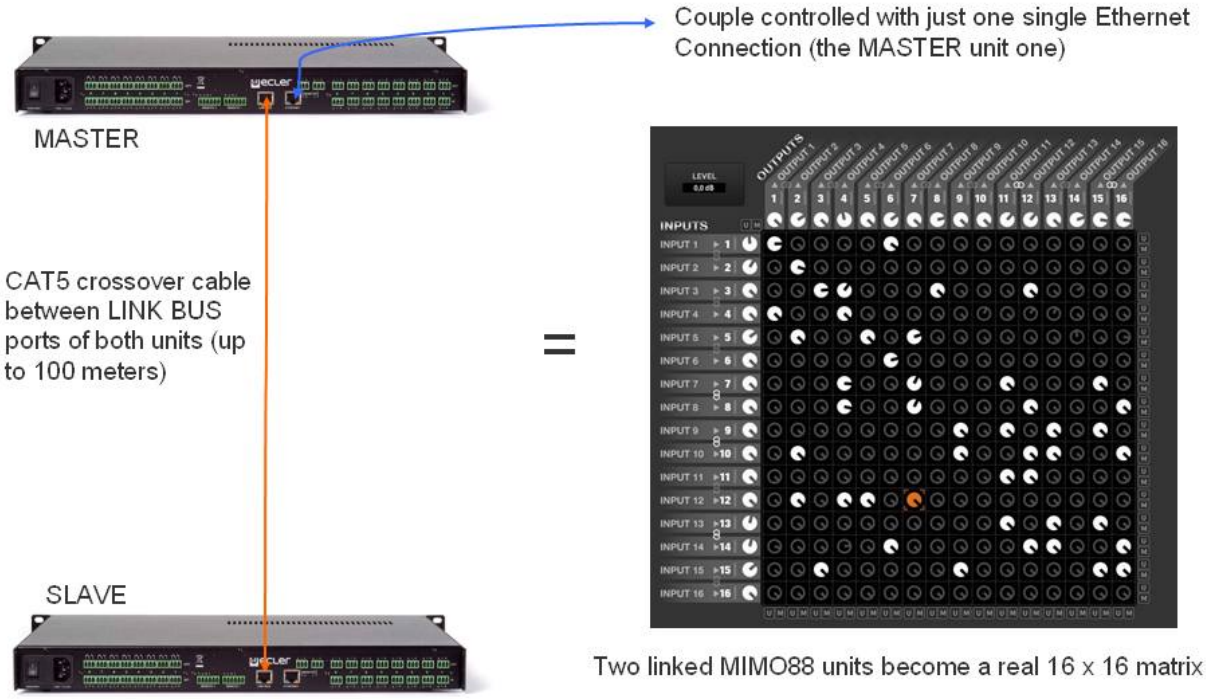


MASTER and SLAVE MIMO88 units are automatically detected

- a unit configured as SLAVE and included in the Project as an additional device has a detailed view named MIMO SLAVE, showing a very reduced control panel (see picture). You can however be connected to it, for example to remotely update its *firmware* or to change its network parameters



- if a Project has several MASTER-SLAVE couples, the only way for EclerNet Manager to manage each pair is the LINK BUS port of the physical connection between the two units. In other words, the application doesn't know which SLAVE unit is the counterpart for each MASTER unit. It is the user's task to identify them by editing their names and comments, making them useful for the "Device Finder" tool (activating a MIMO88 unit makes its front panel LEDs flashing until deactivation).


Couple controlled with just one single Ethernet Connection (the MASTER unit one)
MASTER
CAT5 crossover cable between LINK BUS ports of both units (up to 100 meters)
=
SLAVE
Two linked MIMO88 units become a real 16 x 16 matrix

"LINK" LED indicators on the MIMO88's front panel have different behaviours, depending on whether the unit operates in 8x8, 16x16 MASTER or16x16 SLAVE mode and on its status:

- 8x8 MASTER mode: LED off
- 16x16 MASTER mode:
  - Fast flashing green LED: correct MASTER-SLAVE connection, error-free communication
  - Fast flashing LED, alternating between green and red: communication error in the MASTER-SLAVE connection
  - Slow flashing LED, alternating between green and red: no BUS LINK-connected SLAVE is detected or it's another MASTER unit
- 16x16 SLAVE mode:
  - Fast flashing orange LED: correct MASTER-SLAVE connection, error-free communication
  - Fast flashing LED, alternating between orange and red: communication error in the MASTER-SLAVE connection
  - Slow flashing LED, alternating between orange and red: no BUS LINK-connected MASTER is detected or it's another SLAVE unit

If MASTER-SLAVE connection is invalid, a broken link symbol appears (green and red flashing rectangles) in EclerNet Manager, in the MASTER device status window. Possible causes are:

- no device connected to the BUS LINK of the MASTER unit
- connected equipment is another MASTER unit (its rear panel switch is in MASTER position instead of SLAVE)

7.3. MIMO88 device detailed view

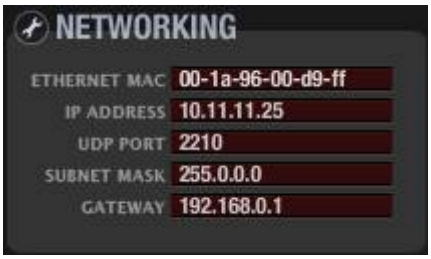
The detailed view of a MIMO88 device has the following appearance:

There are two distinct parts. A top section intended for unit general configuration and settings, and a series of tabs at the bottom (INPUTS, MATRIX, OUTPUTS, etc.) to show the different sections of the device programming.

7.4. MIMO88 general section

The top section of the MIMO88 detailed window provides the following items:

	Device model and name
	Status monitoring and alarms window. See **5.4 Table of status monitoring and alarm icons**
	Active *Preset* window: indicates the *Preset* (configuration memory) currently active in the device
	Presets management icons: *Save Device Preset* (saves the current *Preset*). See **(1)**. *Copy Device Preset* (copies the current *Preset*). *Paste Device Preset* (pastes the previously copied *Preset*). Pasting can be made in another *Preset* of the same unit or another MIMO88 unit of the Project.
	Unit's *firmware* version
	Signal selector for the MIMO88 headphone output: any one of the 8 inputs or outputs of a MIMO88 unit (8x8 mode) or 16 inputs or outputs of a MASTER-SLAVE couple (16x16 mode) or NONE. The signal selected by this selector will be sent simultaneously to the front MONITOR output (unbalanced 3.5 mm jack and volume adjustment) and rear MONITOR 1 and 2 (balanced Euroblock connector). **Note**: you can use the monitor output as an additional auxiliary send of the audio matrix
	Internal signal generator offering pink noise, white noise, sine wave and polarity check, with frequency adjustable between 10 and 20,000 Hz and level=0 dBV

	Reports on the configuration of the device, operating hours accumulated and time and date of the internal clock of the MIMO88 unit. To access the device configuration, click on the spanner icon. See **(2)**
	Reports on the configuration of the device network parameters. To access the configuration of the device network parameters, click on the spanner icon. See **(3)**
	Edition of carousel lists (see **7.11. Carousel lists for MIMO88**)
	Event Management (see **7.12. MIMO88 EVENTS section**)

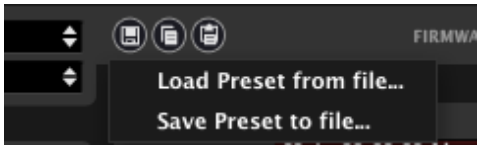
(1) *Save Device Preset* (saves the current *Preset*).
Left-clicking this icon opens a window with the following options:

- Name of the *Preset* to save at the selected location (location number can't be changed)
- Data saved in the *Preset*: Inputs section, Outputs section, Matrix section, Pagers section (*Pagers/Duckers*) , Event/Remote Enables, and finally Link Groups within the matrix.

The *Preset* stores data selected in the previous window only, so that recalling the *Preset* only changes (rewrite) data stored in this *Preset*, not affecting other parameters of the MIMO88.

This ability to save "partial" *Presets* allows a great freedom of management. Example: two *Presets* include MATRIX data only, with two different setups for inputs/outputs routings. By loading either of these two *Presets* during system operation, only such routing will change, respecting inputs and outputs settings the user made up to that point (volume, EQ, etc..), since data for INPUTS and OUTPUTS sections were not saved in any of the two *Presets*.

Right-clicking this icon opens a window with the following options:



- *Load Preset from file*: lets you load a *Preset* stored on a hard drive, external USB memory, etc.
- *Save Preset from file*: lets you save a *Preset* on a hard drive, external USB memory, etc.

These two functions are very useful for copying in a MIMO88 unit a *Preset* coming from another unit currently offline, or from another Project or facility. *Preset* files are saved on disk with a ". MIMO_preset" suffix.

EMERGENCY PRESET– UNDO PRESET:

There are two special *Presets* among the 99 available *Presets* for MIMO88: *Presets* #98 and #99:

- *Preset* #98 is what we might name an “Emergency Preset” (the save file could be renamed Emergency, if desired). When you call this Preset for recovery, the existing configuration is saved beforehand in the preset #99, or “UNDO Preset”. Then *Preset* #98 is recalled. If you later recall *Preset* #99 (UNDO), MIMO88 recovers the exact settings it had before loading *Preset* #98.

  Application example: let's imagine an emergency scenario, requiring to spread an evacuation message in all areas of a facility. In such a scenario, when a trigger (a contact closure that comes from the central fire panel, for example) appears, *Preset* #98 is recalled so that, when loaded, MIMO88 mutes all sound sources, except the evacuation message, and adjusts destinations and output volumes for the message to be delivered with the required intelligibility. The sequence would be:

  1. The system is operating normally
  2. The central fire panel closes a contact that is connected to a MIMO88's GPI
  3. This contact triggers an event recalling *Preset* #98 (EMERGENCY):
     - the current configuration is saved in Preset #99 (UNDO)
     - Preset # 98 (EMERGENCY) is recalled
  4. When the contact is opened (end of emergency), manually or by another event with an inverted polarity on the same GPI input, *Preset* #99 (UNDO) is recalled, returning the system to its initial state as before the onset of the emergency scenario (point 1)

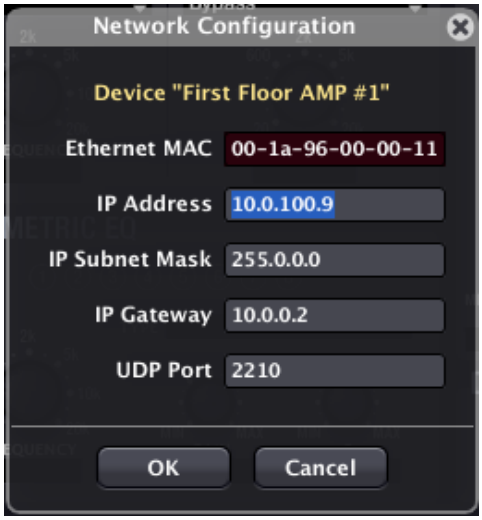
Note: *Preset* #99 (UNDO) remains available in the *Presets* list only as long *Preset* #98 (EMERGENCY) is enabled

(2) Device configuration.
Clicking on the configuration edit icon opens the following parameter setting window:

- *Mode*: 8x8 or 16x16 operating mode (if you select the latter option, this unit is designated as MASTER of the MASTER-SLAVE couple, and the second unit must be connected as SLAVE by LINK BUS, with its back panel switch in SLAVE position)
- *Preset 1 Start Up*: when this box is checked, the M88 unit loads Preset #1 whenever initialized, that is, every time you turn it off then on again. Otherwise, the M88 will start with the last configuration, controls and parameters values before shutdown.
- *Local Date / Local Time*: date and time given by MIMO88's internal clock. Clicking on the circular icon located on its right synchronizes this unit's clock with Windows clock, after requesting confirmation

(3) Network parameters configuration.

Exactly the same window and same parameters than those available with the *Network Configuration* option from the device context menu:



It's important to note that EclerNet compatible devices (MIMO88, NZA, NPA, etc.) **do not support dynamic allocation protocol for network addresses, or DHCP**, ie: they can't dynamically negotiate IP addresses and require manually configured and fixed IP addresses. It is highly recommended that both EclerNet devices (MIMO88, NZA, NPA, etc.) and the computer running EclerNet Manager are configured with static network address within the same range, for full connectivity between all of them. An example of a small local network of this type may have the following network settings in its EclerNet devices:

DEVICE	IP ADDRESS	IP SUBNET MASK
MIMO88 (first floor)	10.5.5.10	255.255.255.0
MIMO88 (second floor)	10.5.5.11	255.255.255.0
MIMO88 (outdoor areas)	10.5.5.12	255.255.255.0
NZA6-180 (first floor)	10.5.5.20	255.255.255.0
NZA6-80 (second floor)	10.5.5.21	255.255.255.0
NZA4-700 (outdoor areas)	10.5.5.22	255.255.255.0
PC (running EclerNet Manager)	10.5.5.100	255.255.255.0

Up to 255 devices, each with a different IP address (in the range of 10.5.5.1 to 10.5.5.255), could be part of this example network.

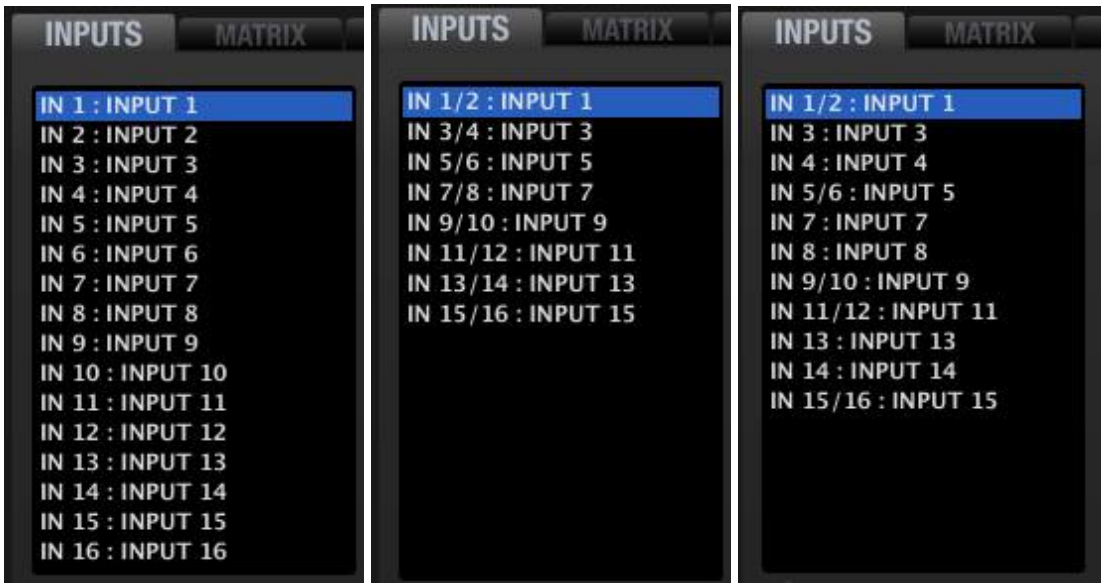
If you want to know your local network TCP / IP configuration, a simple method is to open the Command Console (Start-> Run-> CMD) and to run the **ipconfig /all** command. More information with the following link:
http://www.microsoft.com/resources/documentation/windows/xp/all/proddocs/en-us/ipconfig.mspx?mfr=true

***Note**: despite not supporting DHCP, EclerNet devices (and generally any device with static IP) can coexist with dynamic IP devices, as a DHCP server usually reserves a part of the addresses range for dynamic allocation and another part for static allocation.*

7.5. MIMO88 INPUTS section

The INPUTS section of a MIMO88 device has the following appearance:

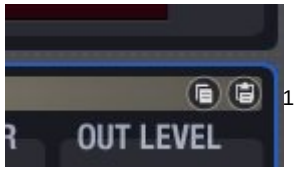
At the top left of the section there is a list of unit inputs, showing from 8 inputs (8x8 configuration, all channels in mono) to 16 inputs (16x16 configuration, all channels in mono) to all possible combinations of pairs of stereo channels with mono channels.


INPUTS
MATRIX
IN 1 : INPUT 1
IN 2 : INPUT 2
IN 3 : INPUT 3
IN 4 : INPUT 4
IN 5 : INPUT 5
IN 6 : INPUT 6
IN 7 : INPUT 7
IN 8 : INPUT 8
IN 9 : INPUT 9
IN 10 : INPUT 10
IN 11 : INPUT 11
IN 12 : INPUT 12
IN 13 : INPUT 13
IN 14 : INPUT 14
IN 15 : INPUT 15
IN 16 : INPUT 16
INPUTS
MATRIX
IN 1/2 : INPUT 1
IN 3/4 : INPUT 3
IN 5/6 : INPUT 5
IN 7/8 : INPUT 7
IN 9/10 : INPUT 9
IN 11/12 : INPUT 11
IN 13/14 : INPUT 13
IN 15/16 : INPUT 15
INPUTS
MATRIX
IN 1/2 : INPUT 1
IN 3 : INPUT 3
IN 4 : INPUT 4
IN 5/6 : INPUT 5
IN 7 : INPUT 7
IN 8 : INPUT 8
IN 9/10 : INPUT 9
IN 11/12 : INPUT 11
IN 13 : INPUT 13
IN 14 : INPUT 14
IN 15/16 : INPUT 15

Examples with all inputs in mono, all inputs in stereo and a combination of mono and stereo inputs

When one of them is selected with the mouse (left button), it turns blue and is selected for the parameters adjustment (EQ, GAIN, DELAY, GATE, etc.). With the context menu of one of the list inputs (right mouse button) you can rename it, edit its comment field, etc. The input number displayed by default is not editable.

In the upper right corner of the INPUTS window, there are two icons named "*Copy Channel Data*" and "*Paste Channel Data*".



Clicking "*Copy Channel Data*" in a channel (source channel) stores all parameters in a temporary memory.
Clicking "*Paste Channel Data*" in a channel copies in the destination channel the parameters stored temporarily during the last "Copy Channel Data" operation, configuring the destination channel as the source channel.

INPUTS section is composed of different groups of controls and indicators: INPUT, DELAY, PARAMETRIC EQ, GATE, COMPRESSOR, and LEVEL. The order of signal processing matches the graphic layout of the screen: INPUT -> DELAY -> PARAMETRIC EQ -> GATE -> COMPRESSOR -> LEVEL

7.5.1. INPUT

- *SELECT*: allows you to select this channel input amongst available sound sources:
    - NONE: no input (muted channel input)
    - GEN: internal generator signal, controlled from the *GENERATOR* panel
    - INx: where x is the numbering of one of the MIMO88's physical inputs (1 to 8 for inputs 1 to 8 linked to a MASTER unit and 9 to 16 for inputs 1 to 8 linked to a SLAVE unit.) Selecting this input type enables the sensitivity selector, with the selected option marked in green, as well as PHANTOM and GAIN settings:
        - Sensitivity:
            - 0 dB: LINE level signals
            - –20 dB: LOW LINE level signals, as delivered by MP3 players, iPod®, laptops, etc..
            - –40 dB: MIC level signals
        - GAIN: ±10 dB adjustment of the incoming signal gain
        - PHANTOM: toggles the remote DC power supply for the condenser microphones connected to this physical input
- *MODE*: MONO or STEREO. Selecting the STEREO mode associates this input to its counterpart (normal input pairs are 1 & 2, 3 & 4, 5 & 6, 7 & 8, 9 & 10, 11 & 12, 13 & 14 or 15 & 16) as a stereo input displayed as a single input (IN 1 / 2 or IN 3 / 4, etc.) in the input list and in the *Project Explorer* window), processing settings being equally applied to both inputs.
  When two inputs are linked as a stereo pair, they use the odd input settings effective before linking. If you split them again, each input returns to the settings it had before linking. In the MATRIX section, a stereo input is represented by the stereo link symbol (bound rings) between the two inputs constituting the normal pair:

7.5.2. DELAY

The DELAY section lets adjust an independent time delay for each input channel. The delay time can be specified in different units, which are determined by the UNITS selector (up and down arrows to the right of the text box). Available units are milliseconds, seconds, centimetres and meters. DELAY can be set between 0 and 1000 milliseconds.

To avoid weird and annoying noises in the output signal, the value change made with the DELAY potentiometer is not effective until the mouse button is released. At that time audio will be temporarily muted (for a variable time, depending on the delay value used) for the new setting to be effective.

7.5.3. PARAMETRIC EQ

This section groups the four parametric filters available per input channel, very useful to correct the frequency response.

Available parameters are described below. After selecting one of the 4 filters (its numerical indicator has a white fill, as filter 1 in the image), its parameters are displayed and their setting is enabled:

- *ENABLE/DISABLE*: enables/disables the parametric EQ, affecting all filters from this section. When the value is DISABLE (top left button greyed out), there is no filter processing (equivalent to BYPASS filters). In the opposite case (green button), EQ is enabled, and its operation depends on the rest of the parameters in this section
- FILTER *TYPE*: type of filter used. You can select one of the following filter types (adjustable controls for each filter type are shown between brackets):
    - *Bypass*: filter not used. Bypassed filters have a grey circle around their numbers (filter #2 or 4 in the picture), while operating filters (not in bypass mode) have a white circle (filter #1 or 3 in the picture)
    - *Parametric EQ* (FREQUENCY, GAIN, Q): classic parametric equalizer filter with adjustable central frequency (between 20 Hz and 20 kHz), gain or attenuation at central frequency (between +12 dB and -60 dB) and bandwidth (1/Q, Q between 0.3 and 200).
    - *Low-Shelf* and *High-Shelf* with a 6 or 12 dB/oct slope (FREQUENCY, GAIN): shelving type filters with adjustable cut-off frequency (between 20 Hz and 20 kHz) and gain or attenuation (between +12 dB and –60 dB).
    - *Low-Pass* y *High-Pass* with a 6 or 12 dB/oct slope (FREQUENCY): these are low-pass and high-pass filters with adjustable cut-off frequency (between 20 Hz and 20 kHz).
    - *All-Pass* order 1 and 2 (FREQUENCY in both, Q in order 2 only): all-pass filters that do not affect the signal amplitude, but the phase at certain frequencies (in contrast with delay, which changes phase at all frequencies). The main application of this type of filter is usually to compensate phase errors in speakers or phase shifts introduced by *crossover* filters

The white outer ring indicates that the filter is enabled. The white fill indicates the selected filter.

7.5.4. GATE

Noise gate section applied to the input signal, affecting its dynamic behaviour. It is very useful to reduce or eliminate background noise picked up by a microphone or existing in a recording, distinguishing between background noise and valid audio signal:

- when the input signal is below the detection threshold, the gate is "closed" or, which is the same, applies some attenuation to the signal (determined by the DEPTH setting in dB)
- when the input signal exceeds the detection threshold, attenuation stops, leaving the gate "open. " The transition time to this state is determined by the ATTACK parameter
- when the input signal falls below the detection threshold, the gate stays open without attenuation the amount of time determined by the HOLD parameter and finally closes, returning to the attenuation level set (the amount of time for this is set by the RELEASE parameter)

Available settings are:

- *ENABLE/DISABLE*: enables/disables the Noise Gate (green button/grey button). When in DISABLE mode, the rest of the section controls are disabled.
- *THRESHOLD*: detection threshold. Defines the input signal level below which the signal is attenuated with an amount indicated by DEPTH (closed gate). This parameter ranges from +18 dB to –80 dB.
- *DEPTH*: attenuation applied to the signal when it is below the detection threshold (closed gate). This parameter ranges from 0 dB to +80 dB.
- *ATTACK*: attack time. Determines the amount of time between the passing of the threshold and the cancellation of the attenuation applied to the input signal (open gate). Adjustment range from 0.1 ms to 500 ms
- *HOLD*: amount of time the gate stays open (without attenuation) once the signal falls back below the detection threshold. Adjustment range from 10 ms to 3 s
- *RELEASE*: release time. Determines the time it takes to close the gate again after the hold time. In this case, the range covers from 1 ms to 1 s.

A correct setting of the noise gate ATTACK, RELEASE and HOLD times is fundamental, for example to get a clear and intelligible voice signal from a speech made in a noisy environment.

7.5.5. COMPRESSOR

The compressor section offers a processing of the input signal dynamic behaviour, allowing you to modify the level differences between high and low level passages of the signal, thereby obtaining a resultant signal with a controlled dynamic margin. Available settings are:

- *ENABLE/DISABLE*: enables/disables the compressor (green button/grey button). When in DISABLE mode, the rest of the section controls are disabled.
- *THRESHOLD*: compression threshold. Specifies the input signal level at which compression begins to occur. This parameter ranges from +18 dB to –36 dB.
- *RATIO*: compression ratio. This parameter specifies how much the compressor reduces the level of an input signal exceeding the compression threshold. With a 1:1 value, the signal level remains unchanged, while with the extreme value of inf: 1, the compressor performs as a signal limiter, preventing the input signal to exceed the level defined by the compression threshold
- *GR* (*Gain Reduction*): VU meter-like indicator of the compression applied to the signal, displaying in decibels the reduction of the compressor output signal compared to the input signal
- *KNEE*: bend of the compression curve. Allows you to select a progressive (SOFT) or sharp (HARD) compressor response when the signal level is near the compression threshold, i.e. to let the transients pass through or not before the compressor starts operating
- *ATTACK*: attack time. Determines the time the compressor takes to respond when the input level rises above the threshold. The range covers from 0.1 ms to 500 ms
- *RELEASE*: determines how quickly the compressor stops acting once the signal input level falls back below the threshold. In this case, the range covers from 10 ms to 1 s.
- *MAKE-UP*: Additional gain for the signal after compression, from 0 to +10 dB. The audible effect of compression is usually a more uniform signal but a lower average intensity (volume). The additional MAKE-UP gain allows you to increase the average level or volume of the signal after it has been compressed, recovering presence and intensity

Correctly setting compressors' ATTACK and RELEASE times is not an easy task: too short release or attack times result in excessive and perceptible low frequencies distortion; on the other hand, too long times could make a compressor useless since it would act too late, letting high intensity signal peaks pass through without applying any compression.

7.5.6. LEVEL

Adjusts the overall level of the input channel that will be sent to the matrix, after pre-processing (EQ, DELAY, GATE, etc..)

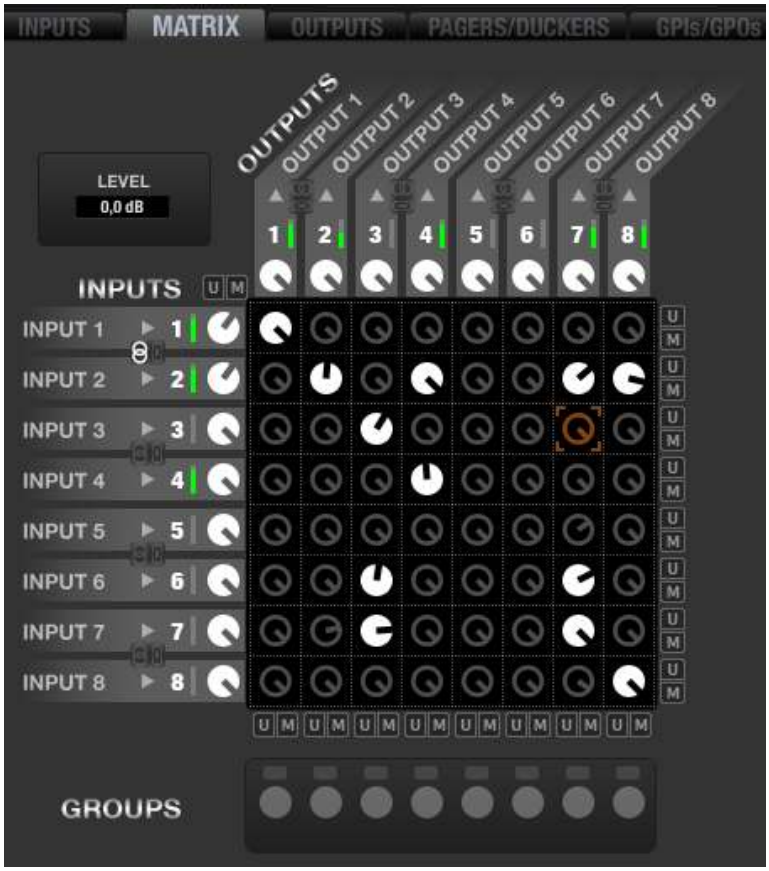
- *VOLUME*: channel volume, adjustable between –infinity and 0 dB. There are two Vu meter-type level indicators to the right of the channel fader: the left bar displays the input signal level and the right one the channel output signal level after processing. Above the bar, the saturation indicator (CLIP) lights up when the input signal (before processing by EQ, compressor, etc..) exceeds the saturation level (+18 dBV)
- *MUTE*: MUTE: mutes audio for this channel.
- *POLARITY*: allows the input signal phase to be inverted (180 degrees shift).

7.5.7. FREQUENCY SHIFTER

Each input has a FREQUENCY SHIFTER (bottom right corner), an efficient system to reduce the risk of feedback loops (audio feedback or Larsen effect) when a microphone source is near the speaker(s) producing its signal, once amplified. When activated, this function slightly shifts the incoming signal frequency on the affected channel before sending it to the matrix mixer and then to the selected output. The shift is so slight that it is barely noticeable to the listener, especially when it occurs in the frequency range of the human voice. A few cycles (Hz) displacement is enough to greatly increase the system protection against possible feedbacks.

7.6. MIMO88 MATRIX section (I/O matrix)

The MATRIX section of a MIMO88 device has the following appearance:



The matrix inputs are represented in INPUTS column, on the left, while the outputs are arranged in OUTPUTS row, at the top.
In the central area there are controls for the crossing points (or "patches") between inputs and outputs, allowing to configure a custom mix of the desired inputs for each output, with individual level adjustment of each input in the mix. The input mix of for an output is independent of the other mixes (other outputs).
The LEVEL field located in the upper left corner displays the value of the *knob* selected with the mouse (orange in the matrix), and can be modified with the mouse from the *knob* itself (click and hold then drag) or from the LEVEL field using the computer keyboard (numerical value + ENTER).

7.6.1. INPUTS column

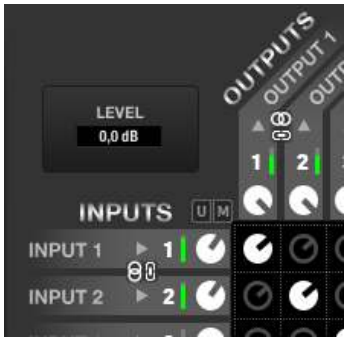
INPUTS column shows the device inputs (8 or 16 depending on the selected operating mode – 8x8 or 16x16). Next to the name of each input, there is a small VU meter and a level adjustment *knob*. The VU meter is a "pre-fader"-type, i.e. it displays the level of the signal taken before the level knob, matching the left bar of the VU meter for the same channel in the INPUTS section. The triangular-shaped indicator to the left of the input number matches the CLIP indicator in the left bar of the VU meter for the same channel in the INPUTS section.
The level adjustment knob is in fact the same LEVEL control that the channel *fader* within the INPUTS section. Changing one of them (MATRIX *knob* or INPUTS *fader*) changes the other at the same time as they are in fact distinct graphical representations of the same control: the amount of input signal that is sent to the matrix row to which it belongs.
Clicking on a *knob* with the left mouse button and holding it allows you to adjust the *knob* setting or amount of signal sent to the matrix row.
A double-click on a *knob* toggles the mute function of this send or "patch". The *knob* is filled in grey when MUTE is active and in white when it is not. This setting is exactly the same as the one from the INPUTS section (LEVEL: MUTE button)

Clicking on the **STEREO** symbol (two bound rings) between two naturally linked inputs (one odd input and the next one constituting the pair: 1&2, 3&4, 5&6, etc.) lets link them in stereo mode (symbol highlighted in white) or break the link, for mono mode (grey symbol). This setting is exactly the same as the one from the INPUTS section (LEVEL: MODE: MONO or STEREO).

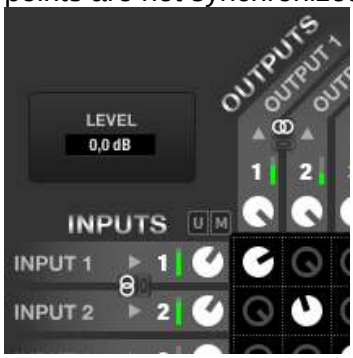
Stereo linking of two inputs copies the odd channel status in the even channel of the pair, and from that moment all adjustments (level, mute, equalization, etc.) are simultaneously applied to both.

If **Link channels** mode is enabled (chain link symbol) in addition to stereo mode, levels and mute function of the 2 crossing points between these inputs and outputs are synchronized. Examples:

- Input 1 stereo, Output 1 stereo, both Link Channels controls enabled (the two crossing points are synchronized and always share the same values):



- Input 1 stereo, Output 1 stereo, both Link Channels controls disabled (the two crossing points are not synchronized and can have different values):



7.6.2. INPUTS-OUTPUTS crossing points

The central square area, a table of 8 rows x 8 columns of *knobs* (8x8 Mode) or 16 rows x 16 columns of *knobs* (16x16 Mode), lets route inputs to outputs and set their levels
Any input or combination of inputs can be sent to any output, with a custom level independent from other sends. So, to send multiple inputs to one output, that output receives a mix of the selected inputs, each one with the desired level, independent from the other levels of the matrix.
To patch an input to an output, you need to activate their crossing point by double-clicking on the *knob* located at the intersection line between inputs column and outputs row. A *knob* is filled in white when its crossover point is turned on, and filled in grey when turned off (or in MUTE status.)

By left-clicking on a crossing point *knob* and holding the mouse button, we can adjust the *knob* setting or amount of input signal sent to the output determined by this crossing point. The *knob* setting can be changed whether the crossover point is active or not. The *knob* setting and the MUTE function are always individual, affecting only the selected *knob* (coloured in orange) even if the source and/or destination stereo is stereo.
Additionally, there are some buttons marked as "U " (UNMUTE) and "M " (MUTE) in various locations of the matrix:

- at the top left of the matrix: they simultaneously act on all crossing points of the matrix (the 8x8 or 16x16 *knobs* it contains), activating or deactivating all sends from all inputs to all outputs
- under each column of the matrix: they simultaneously act on all crossing points of the column (the 8 or 16 *knobs* it contains), activating or deactivating all sends from all inputs to this output
- to the right of each matrix row: they simultaneously act on all crossing points of the row (the 8 or 16 *knobs* it contains), activating or deactivating all sends from this input to all outputs

7.6.3. OUTPUTS row

OUTPUTS row shows the device outputs (8 or 16 depending on the selected operating mode – 8x8 or 16x16). Next to the name of each output, there is a level adjustment *knob* and a small VU meter. The VU meter is a "post-fader"-type, i.e. it displays the level of the signal taken after the level knob, matching the right bar of the VU meter for the same channel in the OUTPUTS section. The triangular-shaped indicator above the channel number matches the CLIP indicator in the right bar of the VU meter for the same channel in the OUTPUTS section.
The level adjustment knob is in fact the same LEVEL control that the channel fader within the OUTPUTS section. Changing one of them (MATRIX *knob* or OUTPUTS fader) changes the other at the same time as they are in fact distinct graphical representations of the same control: the amount of output signal for the mix determined by the crossing points in this output column. This is MASTER control of this output signal, which is then processed by the settings made in OUTPUTS section.
Clicking on a *knob* with the left mouse button and holding it allows you to adjust the *knob* setting or amount of output signal.
A double-click on a *knob* toggles the MUTE function for this output. The *knob* is filled in grey when MUTE is active and in white when it is not. This setting is exactly the same as the one from the OUTPUTS section (LEVEL: MUTE button)

Clicking on the **STEREO** symbol (two bound rings) between two naturally linked outputs (one odd output and the next one constituting the pair: 1&2, 3&4, 5&6, etc.) lets link them in stereo mode (symbol highlighted in white) or break the link, for mono mode (grey symbol). This setting is exactly the same as the one from the INPUTS section (LEVEL: MODE: MONO or STEREO).

Stereo linking of two outputs copies the odd channel status in the even channel of the pair, and from that moment all adjustments (level, equalization, etc.) are simultaneously applied to both.

If **Link channels** mode is enabled (chain link symbol) in addition to stereo mode, levels and mute function of the 2 crossing points between these inputs and outputs are synchronized (see examples in **7.6.1. INPUTS column**).

7.6.4. Matrix Link Groups

Matrix Link Groups are a tool to group and synchronize matrix controls, so that operating one of them simultaneously operates all elements belonging to the same group.
Within a group there may be *knobs* for inputs, outputs, matrix crossing points or a mix of them.

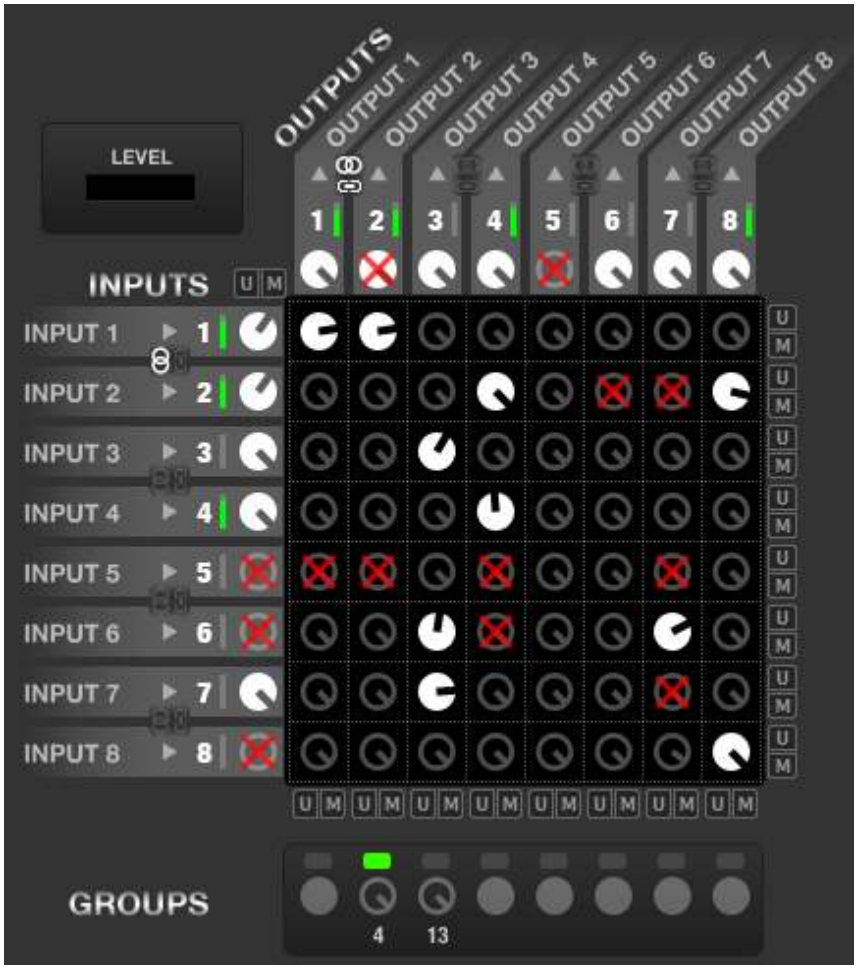
To create or edit a group, you must click on a selection button in order to light it up in green, as for Group 2 in this image:

Then the control to select the group type will flash, indicating that the group is in edit mode, enabling the following actions:

1. Selecting the group type (right mouse button):

- *Mute Group*: operating one of the included controls mutes or unmutes simultaneously all of them, maintaining independent level adjustments
- *Volume Group*: included controls always share the same level. Changing one of them has exactly the same effect on all group members, maintaining independent ON/OFF mute status
- *Mute & Volume Group*: level value ON/OFF mute status are both common to all elements of the group
- *Parallel Output Group*: columns belonging to one of these groups behave exactly the same for the routing of the input signals they receive (enabled/disabled crossing points, levels, mute ON or OFF, selection of sources from the carousel lists). This option is ideal when you need to combine individual rooms into a larger one, so that dedicated outputs always share the same audio content, and you have to control only one of them to control all rooms. Output parameters (level, EQ, compressor for each output, OUT1, OUT2, and so on) of affected columns are still available for free individual settings (same content but different output levels and equalization if necessary)

2. Selecting the group members: click on the knobs you want to include in the group being edited.



Whenever a member is added to the group, the new member and the other members of the group blink. Members that can't be included in the group because they belong to another one are displayed with a red cross superimposed.
Complete the group editing by pressing again your selection button (turns from green to gray shading again).
Once a group is created, any remote control method applied on one of its elements will affect all the group. For example, if one of the *knobs* of a Volume Group is assigned to a GPI (external potentiometer), a WPTOUCH control or a UCP virtual fader for remote management, operating one of these remote controls affects not only this knob but also, and simultaneously, all the knobs of the group (moving a single hardware potentiometer can change several volumes at a time in the matrix).

The restrictions of the groups are:

- Maximum of 8 simultaneous groups
- Maximum of 16 elements in each group (the counter under a group indicates the number of group members (4 and 13 for groups 2 and 3 in the example shown above)
- A single element can not belong to multiple groups

However, you can save groups configuration when saving a *Preset* (***Link groups*** check box checked) so that different *Presets* have different link groups, multiplying the possibilities of control grouping.

7.7. MIMO88 OUTPUTS section

The OUTPUTS section of a MIMO88 device has the following appearance:

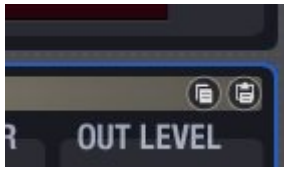
At the top left of the section there is a list of unit outputs, showing from 8 outputs (8x8 configuration, all channels in mono) to 16 outputs (16x16 configuration, all channels in mono) to all possible combinations of pairs of stereo channels with mono channels.

INPUTS
MATRIX
OUT 1 : OUTPUT 1
OUT 2 : OUTPUT 2
OUT 3 : OUTPUT 3
OUT 4 : OUTPUT 4
OUT 5 : OUTPUT 5
OUT 6 : OUTPUT 6
OUT 7 : OUTPUT 7
OUT 8 : OUTPUT 8
OUT 9 : OUTPUT 9
OUT 10 : OUTPUT 10
OUT 11 : OUTPUT 11
OUT 12 : OUTPUT 12
OUT 13 : OUTPUT 13
OUT 14 : OUTPUT 14
OUT 15 : OUTPUT 15
OUT 16 : OUTPUT 16
INPUTS
MATRIX
OUT 1/2 : OUTPUT 1
OUT 3/4 : OUTPUT 3
OUT 5/6 : OUTPUT 5
OUT 7/8 : OUTPUT 7
OUT 9/10 : OUTPUT 9
OUT 11/12 : OUTPUT 11
OUT 13/14 : OUTPUT 13
OUT 15/16 : OUTPUT 15
INPUTS
MATRIX
OUT 1 : OUTPUT 1
OUT 2 : OUTPUT 2
OUT 3/4 : OUTPUT 3
OUT 5/6 : OUTPUT 5
OUT 7 : OUTPUT 7
OUT 8 : OUTPUT 8
OUT 9/10 : OUTPUT 9
OUT 11 : OUTPUT 11
OUT 12 : OUTPUT 12
OUT 13/14 : OUTPUT 13
OUT 15 : OUTPUT 15
OUT 16 : OUTPUT 16

Examples with all outputs in mono, all outputs in stereo and a combination of mono and stereo outputs

When one of them is selected with the mouse (left button), it turns blue and is selected for the parameters adjustment (LEVEL, CROSSOVER, EQ, DELAY, LIMITER). With the context menu of one of the list outputs (right mouse button) you can rename it, edit its comment field, etc. The output number displayed by default is not editable.

OUTPUTS section is composed of different groups of controls and indicators: LEVEL, CROSSOVER, PARAMETRIC EQ, DELAY, LIMITER being the processing order applied to the output signals.



In the upper right corner of the OUTPUTS window, there are two icons named "*Copy Channel Data*" and "*Paste Channel Data*".
Clicking on "*Copy Channel Data*" in a channel (source channel) stores all parameters in a temporary memory.
Clicking on "*Paste Channel Data*" in a channel copies in the destination channel the parameters stored temporarily during the last "Copy Channel Data" operation, configuring the destination channel as the source channel.

7.7.1. LEVEL

Adjusts the overall channel output level after processing (CROSSOVER, PARAMETRIC EQ, DELAY, LIMITER):

- *VOLUME* fader: output channel volume, adjustable between –infinity and 0 dB. There are two Vu meter-type level indicators to the right of the channel fader: the left bar displays the output channel signal level coming from the matrix and the right one the output channel signal level after processing (LEVEL, CROSSOVER, EQ, etc.). Above the bar, the saturation indicator (CLIP) lights up when the input signal (before processing by EQ, compressor, etc..) exceeds the saturation level (+18 dBV)
- *SOLO*: mutes all device channels except the one with the SOLO function enabled.
- *MUTE*: MUTE: mutes audio for this channel.
- *POLARITY*: allows the output signal phase to be inverted (180 degrees shift).
- *MODE*: MONO or STEREO. Selecting the STEREO mode associates this output to its counterpart (normal output pairs are 1 & 2, 3 & 4, 5 & 6, 7 & 8, 9 & 10, 11 & 12, 13 & 14 or 15 & 16) as a stereo output displayed as a single output (OUT 1 / 2 or OUT 3 / 4, etc.) in the output list, processing settings being equally applied to both outputs. When you select STEREO, the odd channel settings are assigned to the pair of channels. If you split them again, each output returns to the settings it had before linking. In the MATRIX display, STEREO inputs are displayed separately and are identified by their "link" symbol lit.

  If **Link channels** mode is enabled in the **MATRIX** section (chain link symbol) in addition to stereo mode, levels and mute function of the 2 crossing points between these inputs and outputs are synchronized (see examples in **7.6.1. INPUTS column**).

7.7.2. CROSSOVER

The CROSSOVER section contains the FILTER TYPE and FREQUENCY parameters for each of the two filters (low-pass and high-pass) constituting the *crossover*. It usually splits the audio frequency spectrum in two parts, creating the two bands usually used in two-way speakers.

- *FILTER TYPE*: allows you to select the *crossover* filter type. You can select one of the following filter types.
  - Butterworth 6, 12, 18 or 24 dB/oct
  - Bessel 12, 18 or 24 dB/oct
  - Linkwitz-Riley 12 or 24 dB/oct

***Note**: selecting one or another type of crossover filter automatically adjusts the number of filters available in the parametric equalizer for that channel. Using a 6 or 12 dB/oct crossover filter*

depletes one of the filters available in the parametric equalizer, while using a 18 or 24 dB/oct crossover filter depletes two filters.

- *FREQUENCY*: adjusts the filter cutoff frequency within the 20 Hz - 20 kHz range.

7.7.3. PARAMETRIC EQ

This section groups the parametric filters available for each output channel, very useful to correct the frequency response. If no *crossover* filters are used in the channel, there will be a maximum of 8 parametric filters freely available, while using *crossover* reduces the number of available parametric filters, between 7 and 4 (value automatically updated when *crossover* filters are operated). See section: **7.7.2. CROSSOVER**.

Available parameters are described below. After selecting one of the filters (its numerical indicator is filled, as filter 3 in the picture), its parameters are displayed and their setting is enabled:

The white outer ring indicates that the filter is enabled. The white fill indicates the selected filter.

- *ENABLE/DISABLE*: enables/disables the parametric EQ, affecting all filters from this section. When the value is DISABLE (top left button greyed out), there is no filter processing (equivalent to BYPASS filters). In the opposite case (green button), EQ is enabled, and its operation depends on the rest of the parameters in this section
- *FILTER TYPE*: type of filter used. You can select one of the following filter types (adjustable controls for each filter type are shown between brackets):

    - *Bypass*: filter not used. Bypassed filters have a grey circle around their numbers (filter #2 or 4 in the picture), while operating filters (not in bypass mode) have a white circle (filter #1 or 3 in the picture)
    - *Parametric EQ* (FREQUENCY, GAIN, Q): classic parametric equalizer filter with adjustable central frequency (between 20 Hz and 20 kHz), gain or attenuation at central frequency (between +12 dB and -60 dB) and bandwidth (1/Q, Q between 0.3 and 200).
    - *Low-Shelf* and *High-Shelf* with a 6 or 12 dB/oct slope (FREQUENCY, GAIN): shelving type filters with adjustable cut-off frequency (between 20 Hz and 20 kHz) and gain or attenuation (between +12 dB and –60 dB).

- *Low-Pass* y *High-Pass* with a 6 or 12 dB/oct slope (FREQUENCY): these are low-pass and high-pass filters with adjustable cut-off frequency (between 20 Hz and 20 kHz).
- *All-Pass* order 1 and 2 (FREQUENCY in both, Q in order 2 only): all-pass filters that do not affect the signal amplitude, but the phase at certain frequencies (in contrast with delay, which changes phase at all frequencies). The main application of this type of filter is usually to compensate phase errors in speakers or phase shifts introduced by *crossover* filters

7.7.4. DELAY

The DELAY section allows you to adjust an independent time delay for each output channel. This function is useful for example to temporarily align the different ways of a loudspeaker cabinet, using an output with a corresponding delay for each one of them.

The delay time can be specified in different units, which are determined by the UNITS selector (up and down arrows to the right of the text box). Available units are milliseconds, seconds, centimetres and meters. DELAY can be set between 0 and 1000 milliseconds.

To avoid weird and annoying noises in the output signal, the value change made with the DELAY potentiometer is not effective until the mouse button is released. At that time audio will be temporarily muted (for a variable time, depending on the delay value used) for the new setting to be effective.

7.7.5. LIMITER

The limiter section offers a dynamic processing of the output signal, allowing you to limit its maximum level. This function is very useful for example when you want to moderate the maximum volume produced by the speakers of the system for several possible reasons, one of them (very obvious) being to avoid exceeding their power handling capacity to protect them from a failure. Available settings are:

- *ENABLE/DISABLE*: enables/disables the limiter (green button/grey button). When in DISABLE mode, the rest of the section controls are disabled.
- *THRESHOLD*: limitation threshold. Specifies the output signal level at which limitation begins to occur. This parameter ranges from +18 dB to –36 dB.
- *GR* (*Gain Reduction*): VU meter-like indicator of the limitation applied to the signal, displaying in decibels the reduction of the limiter output signal compared to the input signal
- *ATTACK*: attack time. Determines the time the limiter takes to respond when the output level rises above the threshold. The range covers from 0.1 ms to 500 ms
- *RELEASE*: determines how quickly the limiter stops acting once the signal output level falls back below the threshold. In this case, the range covers from 10 ms to 1 s.

Correctly setting limiters' ATTACK and RELEASE times is not an easy task: too short release or attack times result in excessive and perceptible low frequencies distortion; on the other hand, too long times could make a limiter useless since it would act too late, letting high intensity signal peaks pass through.

7.8. MIMO88 PAGERS/DUCKERS section

The PAGERS/DUCKERS section of a MIMO88 device has the following appearance:

This section lets you configure the four application modules based on the attenuation (or muting) of an audio signal by another signal, allowing the diffusion of messages or other audio content with priority over other signals. These modules are named "P/D module 1 " to "P/D module 4" (short for "Pager/Ducker Module 1, 2, 3 or 4") and any of them can be configured as pager (real-time voice announcement for destination zones selected through a MPAGE16 console, for example) or "ducker" or "override" (an audio signal has priority over all other ones that are attenuated or muted in the selected destination zones.)

From this section it's not possible to operate PAGER modules as usual (selecting destination zones of the PAGER, activating the PAGE or DUCK function, etc.), but only to set performance parameters and enable/disable possible destination zones.

It is important to notice that the configuration of the PAGERS/DUCKERS section can be stored in *Presets*, so that different *Presets* define different destination zones and settings for these 4 modules.

In the list of the left side of the section one of the four modules can be selected then configured using the controls on the right side (TYPE, INPUT, PRIORITY, etc.).

7.8.1. Configuring a module as PAGER

This operating mode of the PAGER/DUCKER modules is suitable for the configuration of a voice announcement system in real time or "paging" through a MPAGE16 console. With the MPAGE16, you can select a number of destination zones and send them the voice messages (announcements), reducing the existing audio content volume during the emission of the message.

> ***Note**: Although the description of this section focuses on the module configuration for connection to a MPAGE16 console, it is also possible to control a module configured as PAGER in other way from EclerNet remote clients.*

It is important to notice that the configuration of the DUCKER section can be stored in *Presets*, so that different *Presets* define different destination zones for a PAGER module.

Once one of the four modules has been selected in the list, its operating mode as PAGER is chosen using the TYPE selector.

Then, the INPUT selector defines the MIMO88 audio input your MPAGE16 console microphone will be connected to in order to send voice messages. The list shows the 8 or 16 available inputs of the system, depending on the 8x8 or 16x16 configuration (2 MIMO88s linked as MASTER-SLAVE). It is highly recommended to use a high-pass filter to process this input (120 or 150 Hz) in order to eliminate a great part of the ambient noise and LF interferences from the incoming signal, especially in applications with long runs of wiring. See section: **7.5.3. PARAMETRIC EQ**.

The PRIORITY selector determines the module priority level between 1 and 4, level 1 being the highest priority. In a configuration with two consoles having different priority levels, each using one PAGER modules, the console with the highest priority may interrupt the lower priority one in case of overlapping in the destination zones during the emission of a message (i.e. while the areas are retained). This interruption may be total or partial in terms of message length, and affects only those areas where there is overlap. When the two consoles have the same priority level, the first one that holds a zone (or several) has priority for the duration of the message, holding the zone(s) up to their release.
Priority management and zones holding as explained in the previous example (two PAGER modules assigned to two hardware MPAGE16 consoles) is also applicable in other cases: two DUCKER modules or one DUCKER module + one PAGER module.

You can include a brief chime melody in each message sent, usually as a warning of message start. Two melodies (MELODY 1, MELODY 2) or NONE can be selected with the CHIME selector. Every time a console starts sending a message using the PAGE key, the selected melody is first heard in the destination zones so that at the next step the console user can send the voice message.

The destination zones keys in the central part of the section (1 to 8 or 1 to 16, depending on the MIMO88's operating mode, 8x8 or 16x16) allow you to enable or disable zones by a double-click. When a zone is enabled (filled in white) the MPAGE16 console may select it as destination of its message, whereas when it is disabled (unfilled) the console can't select it as a destination. Even if an output channel is set to stereo, you can enable/disable any of the two zones that compose it from this configuration screen. If an output channel is set to stereo, selecting/releasing a zone from the MPAGE16 also selects/ releases the other, if it was enabled.

Example: module #1 configured as PAGER, audio input IN5 and zones 2, 3, 4, 9 and 11 enabled for messages sending from a MPAGE16 console

In addition, each key includes a light indicator with different colour codes to indicate the zone status. The "tooltip" indicator that appears when the cursor is positioned over a key also displays its status. These indications match those given by the physical MPAGE16 console with its key LEDs:

- Unlit: free zone (not hold by another console, if any)
- Lit in green: zone selected by the console to broadcast the following message
- Lit in red: zone not selected in the console, but hold by the other highest priority console (or DUCKER)

- Lit in orange: zone selected by the console, but hold by the other highest priority console (or DUCKER)

The *PAGE* key is a representation of the hardware PAGE key from the MPAGE16 console, just for status information given by the colour of the light, since it does not allow you to enable or disable any function of the PAGER module. The PAGE key of this section is lit while you hold down the PAGE key from the MPAGE16 console to indicate that the console is entering the message sending mode:

- Lit in orange: when you start sending a message (pressing and holding the PAGE key), it indicates that the chime melody is played (as determined with **EclerNet Manager** for the control programming), then turns green at the end of the chime. Thus, the speaker knows when the chime ends and can start its speech without overlapping the chime broadcasting
- Lit in green: *paging* function activated with voice message broadcasting to selected destination zones (duration of the voice message)

Knobs on the lower part of the section are used to adjust the way the PAGER function performs:

- *CHIME VOL*: playback volume of the chime melody (-12 to 0 dB). This melody and the input channel associated with the PAGER (signal of the microphone connected to a MIMO88 input) are mixed, the effective volume being affected by the general volume of the input channel (see section: **7.5.6. LEVEL**). The level meter of this input channel also reflects the playback of the chime melody
- *DEPTH*: attenuation applied on the rest of the signals sent to the destination zone(s) during the time the PAGER function is active (0 to 80 dB)
- *ATTACK*: attack time. Determines the time elapsed since the activation of the PAGE key until signal attenuation starts. The range covers from 5 ms to 2 s
- *RELEASE*: determines the time elapsed until attenuation stops once you release the PAGE key. In this case, the range covers from 50 ms to 3 s.

***Note**: For outputs an input should send messages to through a pager module, the crossing points of the matrix between this input and all possible outputs should be in MUTE state. The PAGE action momentarily removes the MUTE for the selected input in the pager and activates the MUTE or attenuation for all other inputs. The distribution volume to each of the outputs is independently set by the volume of the crossing point. When outputs an input should send messages to through a pager module have an unmuted matrix intersection between this input and all possible outputs, input signal will be broadcast <u>without needing to activate PAGE</u> from the console or the user screen.*

7.8.2. Configuring a module as DUCKER

This operating mode of PAGER/DUCKER modules is suitable for the configuration of a voice announcement system in real time via a microphone (handheld, desktop, headset, etc..) or pre-recorded voice messages played on an external audio file player. The announcement signal is broadcast in the destination zones, the rest of the signals played back in these zones being attenuated. The selection of destination zones or outputs affected by the DUCKER function can be done by programming MIMO88 with EclerNet Manager or in real time from EclerNet Manager remote clients. It is important to notice that the configuration of the DUCKER can be stored in *Presets*, so that different *Presets* define different combinations of destination zones for a PAGER module.

Once one of the four modules has been selected in the list, its operating mode as DUCKER is chosen using the *TYPE* selector.

Then, the INPUT selector defines the MIMO88 audio input your microphone, audio player or sound source will be connected to in order to act as a trigger of the DUCKER function. The list shows the 8 or 16 available inputs of the system, depending on the 8x8 or 16x16 configuration (2 MIMO88s linked as MASTER-SLAVE).

The *PRIORITY* selector determines the module priority level between 1 and 4, level 1 being the highest priority. In a configuration of two DUCKER modules with different priority levels, the module with the highest priority may interrupt the lower priority one if destination zones overlap during the emission of a message. This interruption may be total or partial in terms of message length, and affects only those areas where there is overlap. When the two modules have the same priority level, the first one that holds a zone (or several) has priority for the duration of its message, holding the zone(s) up to their release.
Priority management and zones holding as explained in the previous example (two DUCKER modules) is also applicable in other cases: two PAGER modules or one DUCKER module + one PAGER module.

The destination zones keys in the central part of the section (1 to 8 or 1 to 16, depending on the MIMO88's operating mode, 8x8 or 16x16) allow you to select the destination zones for a PAGER module by a mouse click. If a zone is selected (green LED indicator), the DUCKER module will affect it when the input signal exceeds the threshold. Even if an output channel is set to stereo, you can select or deselect any of the two zones that compose it from this configuration screen.
The light indicator inside the keys has different colour combinations to indicate the zone status. The "tooltip" indicator that appears when the cursor is positioned over a key also displays its status. Possible status:

- Unlit: free zone (not hold by another DUCKER or PAGER, if any)
- Lit in green: zone selected by the DUCKER to broadcast the following message
- Lit in red: zone not selected in the DUCKER, but hold by another highest priority DUCKER (or PAGER)
- Lit in orange: zone selected by the DUCKER, but hold by another highest priority DUCKER (or PAGER)

The *DUCK key* gives is a representation of the active or inactive status of the DUCK function for the selected module that doesn't allow you to enable or disable any function of the DUCKER module. It lights up in green when the DUCKER function is active.

Example: module #2 configured as a DUCKER, audio input IN6 and zones 1, 3, 13 and 15 enabled for priority broadcasting of IN6 signal when it exceeds the threshold, attenuating the existing audio content in the affected outputs

Knobs on the lower part of the section are used to adjust the way the DUCKER function performs:

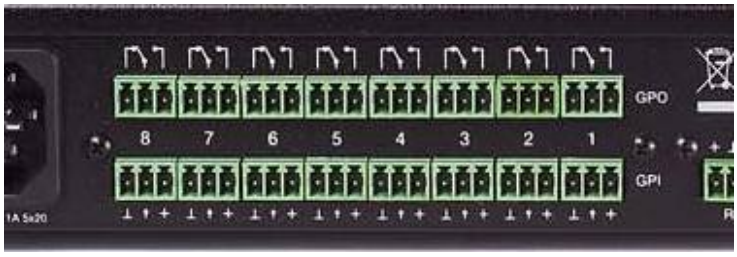
- *THRESHOLD*: activation threshold. When the module's input signal (INPUT selector) exceeds this threshold, the DUCKER function is activated, sending the signal to the destination zones and attenuating the other audio signals sent to the same zones (-80 to 0 dB)
- *DEPTH*: attenuation applied on the rest of the signals sent to the destination zone(s) during the time the DUCKER function is active (0 to 80 dB)
- *ATTACK*: attack time. Determines the time the DUCKER takes to respond when the level rises above the threshold (activating the attenuation of other signals in the destination zones). The range covers from 5 ms to 2 s
- *HOLD*: amount of time the DUCKER function remains active once the signal falls back below the detection threshold. Adjustment range from 10 ms to 3 s
- *RELEASE*: determines the time elapsed until attenuation stops after the time fixed for HOLD. In this case, the range covers from 50 ms to 3 s.

7.9. MIMO88 GPIs/GPOs section

GPIs/GPOs section basically allows two functions:

- Monitoring the 0 - 10 VDC signal detected in GPI inputs (8 or 16 inputs, depending on whether it is a MIMO88 or a couple MASTER-SLAVE). The monitoring is displayed in the window under the GPI name (GPI1, GPI2, etc.) and as a percentage of the maximum possible value (0 to 100%)
- Monitoring and modifying the GPI output status (8 or 16 outputs, depending on whether it is a MIMO88 or a couple MASTER-SLAVE).

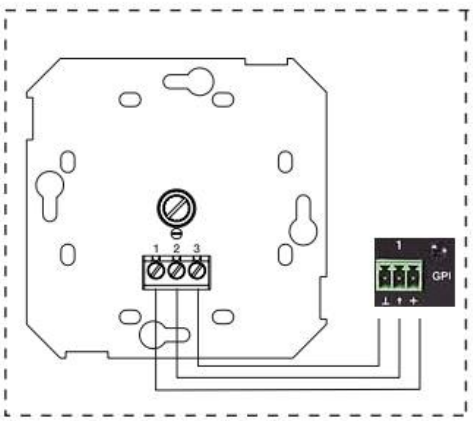
MIMO88's GPI and GPO ports allow you to connect external control hardware and to interact with these units: potentiometers, push buttons, limit switches, lights, motors, etc.



A GPI port (General Purpose Input) is a MIMO88 physical connection that lets read the DC voltage applied to it, and that can vary within the range of 0 to 10 VDC (0 to 100% in the screen readings,

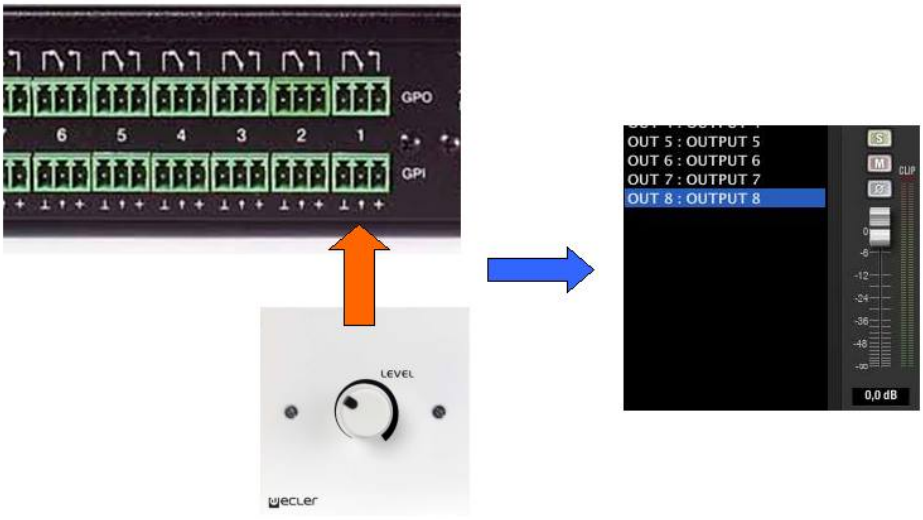
). This is a control input (no audio), linkable to EclerNet Manager virtual controls and therefore to the MIMO88. Each GPI port has 3 contacts: ground, detection terminal and +VDC (pictured from left to right). Thus it is possible to feed a passive element such as a potentiometer, using the power supplied by the GPI port itself, as in this example:

Positive, + 10 VDC	>	Pin +
Variable voltage, 0-10 VDC	>	Pin↑
Ground	>	Pin ⊥



See the MIMO88 *hardware* manual for other options of connection to GPI ports.

In the following example, connecting a potentiometer to a GPI port and turning it will give its cursor a variable voltage between 0 and 10VDC. We can associate this GPI input with the MIMO88 volume control, and thus have a remote volume control by external hardware like a WPVOL ECLER (potentiometer):



The picture is a representation of a WPVOL physically connected to the GPI 1 and assigned to the volume of MIMO88's output 8 by EclerNet Manager programming

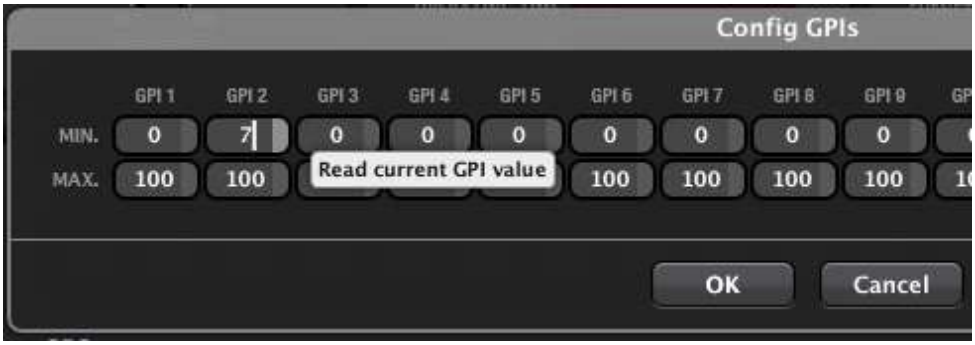
GPI management is done from the EVENTS section of EclerNet Manager (see **7.12. MIMO88 EVENTS section**).

Sometimes, especially with long runs of cable between a knob or button and the MIMO88 and, consequently, a considerable voltage drop, detection terminal will not receive a voltage very close to 0 and/or 10 VDC (potentiometer to the minimum and maximum, external contact opened and closed, etc.). In this case, it may be desirable to calibrate the minimum and maximum voltage received by the GPI port, so that the MIMO88 might rescale all the possible range of tensions received at that port and work properly with assigned parameters.
The calibration process is done by clicking on the configuration wrench icon in the **GPIs/GPOs** section:

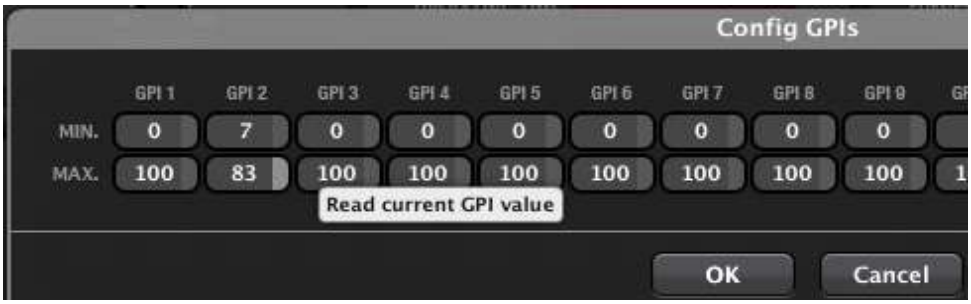
The configuration screen that opens looks like:

Example for calibrating a WPVOL hardware potentiometer connected to GPI #2 to remotely manage a volume control of MIMO88:

1. Place the pot on the end that provides a minimum reading (in our case 7)
2. Click on the ***Read Current GPI value*** button:



3. Place the pot on the end that provides a maximum reading (in our case 83)
4. Click on the ***Read Current GPI value*** button:



5. Accept the changes with *OK.*

A GPO port (General Purpose Output) is a relay with a common contact and two contacts: NO (Normally Open, with the relay at rest) and NC (normally closed, with the relay at rest). From the GPIs/GPOs section it is possible to enable or disable the GPO ports of a MIMO88 unit by clicking on them. When you activate a GPO, contacts are reversed: contact closes for NO and opens for NC. Contacts at rest are filled in grey and active contacts light up in green:

In the picture the GPO 1, 4, 5 and 7 are active and the rest of them are inactive

GPO status (active or inactive) is stored in the *Presets*, so that recalling one of them also recalls the existing combination of active/inactive GPOs at the time of storage.

GPO management can also be done from the EVENTS section of EclerNet Manager (see **7.12. MIMO88 EVENTS section**).

See the MIMO88 *hardware* manual to know current limitations of GPO ports.

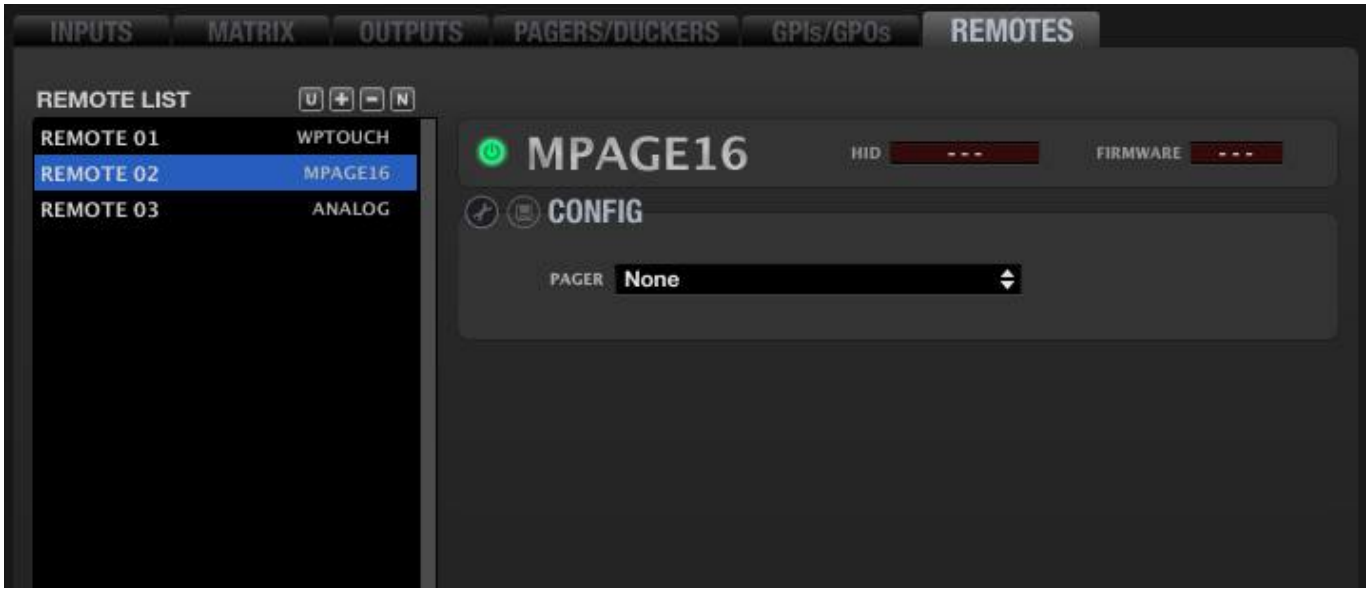
7.10. MIMO88 REMOTES section

REMOTES section allows you to identify and configure the different hardware remote controls connected to a MIMO88 unit, that may be ECLER WPTOUCH (digital touch wall panel), MPAGE16 (desktop digital paging station with touch-sensitive keys) or even ECLER WPVOL-SR (analog wall panels for source selection and volume control).

Remote controls operate available functions of the MIMO88, allowing the end user to friendly control certain parameters of the installation using a classic and familiar looking hardware control. These are basically the following functions:

- Adjust volume of inputs, outputs or crossing points of the audio matrix
- Toggle MUTE controls (inputs, outputs, crossing points)
- Select sound sources (audio inputs connected to the matrix) for certain destination zones (matrix audio outputs)
- Select *Presets* (MIMO88 configuration memories)
- Send voice messages to certain destination zones

The window displayed after selecting the REMOTES tab looks like this one:



On the left, remote controls assigned to this MIMO88 unit appear in the REMOTE LIST (this list is empty by default when entering the REMOTES section for the first time in a project.) Every time we add, delete or edit the name of one of them in our project, the list is updated. Remote controls included in the list may be further configured to perform the desired functions.

Concerning the maximum number of digital remote controls:

- WPTOUCH: the MIMO88 can handle a maximum of 16 WPtouch units, both in single mode (8x8) and MASTER-SLAVE mode (16x16)
- MPAGE16: the MIMO88 can handle a maximum of 4 MPAGE16 units, both in single mode (8x8) and MASTER-SLAVE mode (16x16)

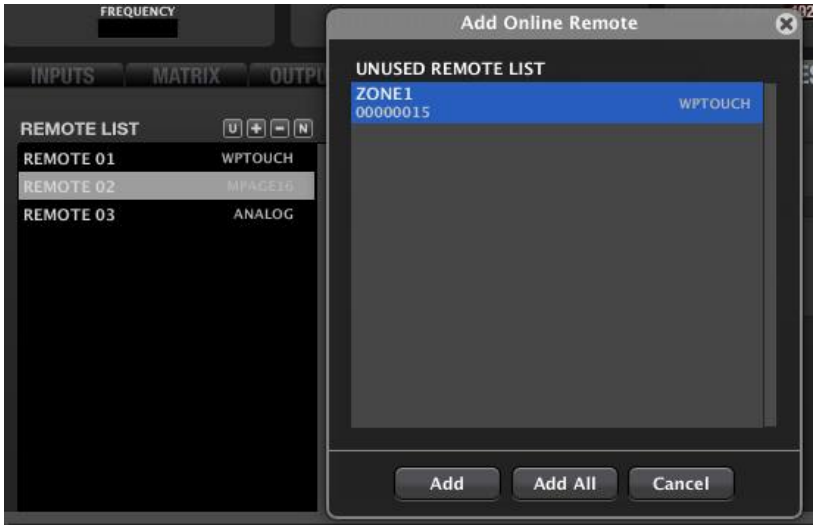
  ***Note**: EclerNet Manager must be set in **DESIGN** mode (not DEPLOY) to enable configuration functions detailed in this chapter for remote panels.*

The

icons respectively allow you to (from left to right):

- *Add Online and Unused Remote*: as a MIMO88, NZA or NPA unit, a digital remote device features the "Auto Discover" function, i.e. when connected to the ER-Bus (REMOTE 1 or REMOTE 2 connector on the rear panel of the MIMO88) it is automatically identified or "scanned"

by the application. Clicking on the "*Add Online and Unused Remote*" icon displays a list of all "scanned" digital remote controls. You can select the ones to assign to the MIMO88 unit, becoming part of the REMOTE LIST



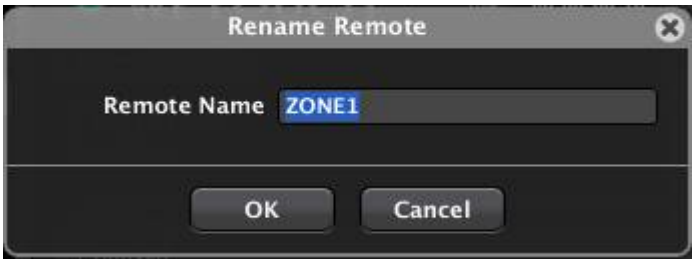
WPTOUCH digital remote control automatically detected

The same control once added to the REMOTE LIST

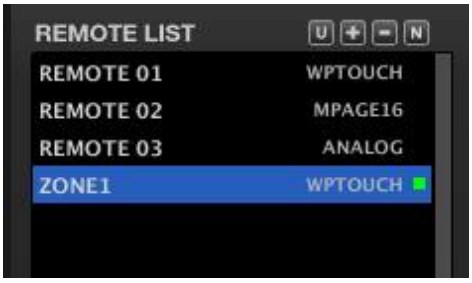
- *Add New Remote*: to manually add a WPTOUCH (digital), MPAGE16 (digital) or ANALOG (WPVOL-SR type) remote control to the REMOTE LIST

- *Remove Remote*: to remove one of the devices from the REMOTE LIST

- *Change Remote Name:* to change the name of a remote control from the REMOTE LIST



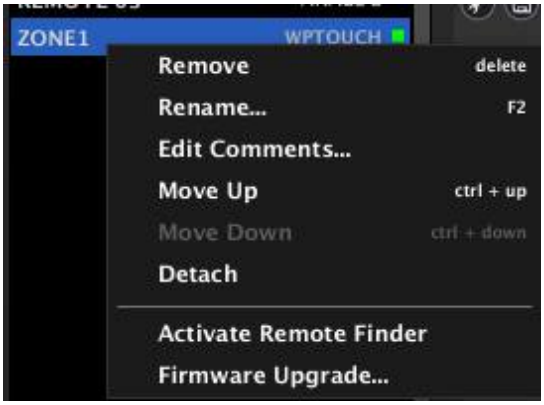
The digital remote controls have a status icon located to the right of their name and model in the list (green for the "ZONE1" remote control in the picture):



This icon lights up differently to indicate distinct states:

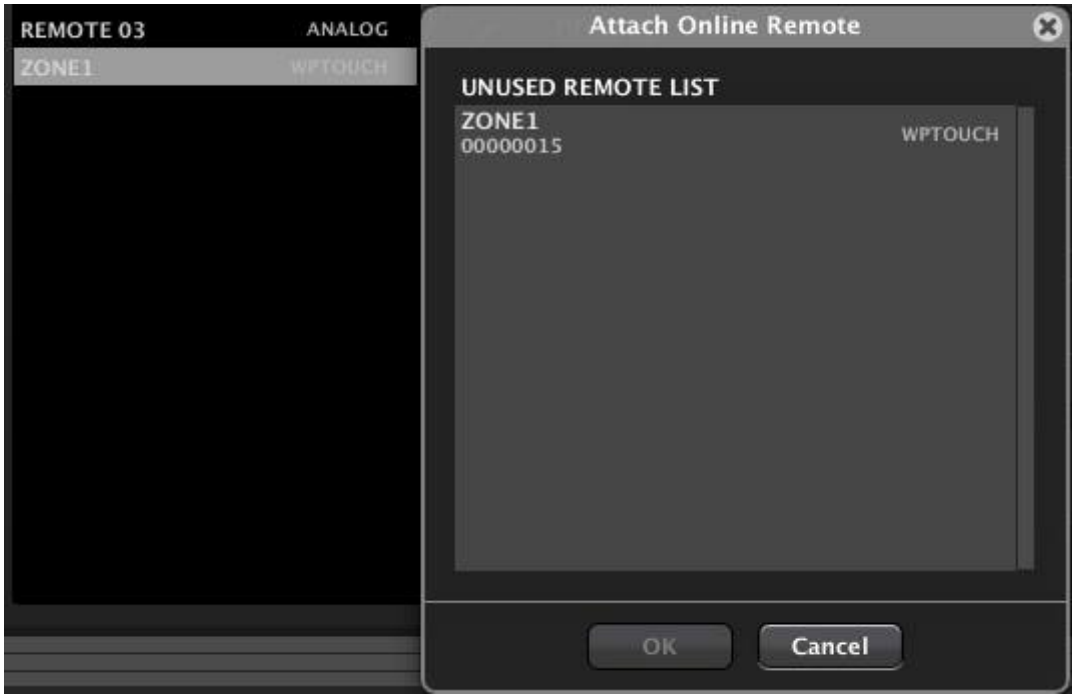
- Unlit: the virtual remote control (from list) is not associated with any *hardware* device
- Steady red: the *hardware* device associated with the virtual remote control panel is not "online" (the MIMO88 unit it depends on is disconnected)
- Flashing red: the *hardware* device associated with the virtual remote control panel has been detected "online" by the MIMO88 (the MIMO88 unit it depends on is connected, but the remote control is disconnected)
- Steady green: both MIMO88 *hardware* and the remote control are "online" and operational
- Flashing green: the operating MIMO88 and the remote control are "online" but not operational (*firmware-software* versions are not compatible)

Remote controls from the REMOTE LIST also have a context menu (right button of the mouse):

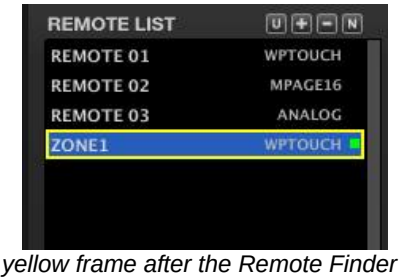


- *Remove:* to remove the device from the REMOTE LIST
- *Rename:* to change the name assigned to a device
- *Edit Comments:* to add a text field with personalized comments about the remote device:

- *Move Up:* the device moves up one position in the list
- *Move Down:* the device moves down one position in the list
- *Attach/Detach:* to attach or detach a digital device in the list (virtual) to/from a hardware digital device automatically detected:



- *Activate Remote Finder:* activates/deactivates the blinking of the front panel light indicators (LCD display for WPTOUCH, LEDs for MPAGE16 series) on the concerned digital *hardware* remote control panel, thus allowing easy identification on site. Simultaneously, the frame of the device shown in the REMOTES LIST also blinks, making it possible to link a virtual device of the Project with its hardware counterpart, to check its identity before changing its settings.



Flashing yellow frame after the Remote Finder activation

- *Firmware Upgrade*: opens a dialog box that allows you to load a remote device *firmware* file (with .bin extension) and to transfer it to the related device. The device must be "online" to perform this operation.

Here is the procedure for setting different types of remote control that can be connected to a MIMO88

7.10.1. Configuring a WPTOUCH-type remote control

The WPtouch is a digital remote control panel for wall mounting featuring the following elements:

- LCD display
- touch-sensitive jog wheel
- 2 touch-sensitive keys (hereafter T1: left key, T2: right key)

The LCD screen, the T1 key and the wheel are programmable from EclerNet Manager for the WPtouch to perform certain actions in order to control and display information. The T2 always switches between volume and selection.

The wheel controls by default the volume (**Volume mode**) allocated with the programming. In addition, it may act as a selector (**Selection mode**) for the sound sources associated with a particular zone, or as a *Preset* selector. To switch from **Volume mode** to **Selection mode**, you must press T2, turn the control wheel to make the desired change and press T2 again to confirm. A triangular index to the right of the LCD screen indicates whether the unit is in Volume adjustment mode (pointing the bottom row of characters) or Selection mode (pointing the top row of characters).

When selecting a WPTOUCH unit in the REMOTE LIST, its detailed configuration screen is displayed on its right:

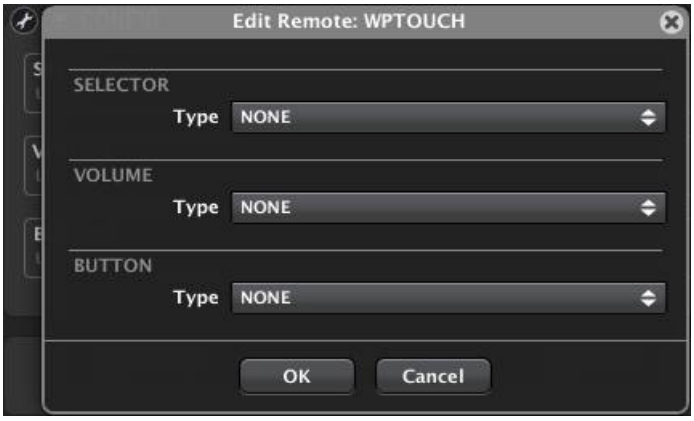
In its upper part, the display includes:

- *Enable/Disable Remote* button: to enable (lit in green) or disable each WPTOUCH unit connected to the MIMO88. The state (enabled or disabled) of remote controls is stored in a system *Preset* when you save it, so that you can manage which remote controls are enabled or not by recalling each *Preset* (e.g. when loading a *Preset* for asking to evacuate a building with a pre-recorded message, all remote controls of the installation are disabled to avoid user interferences in such special scenario in which the evacuation message prevails on the rest of the audio signals...).
- *HID* indicator: *hardware* ID (assigned at the factory, unique to each unit and not editable by the user)
- *Firmware* indicator: unit's *firmware* version

Now comes the WPTOUCH configuration area:

- The (*Change Configuration*) icon gives access to the configuration parameters of the unit
- The (*Save Configuration in Remote*) icon stores the WPTOUCH device configuration

Clicking on the icon opens the WPTOUCH configuration window:

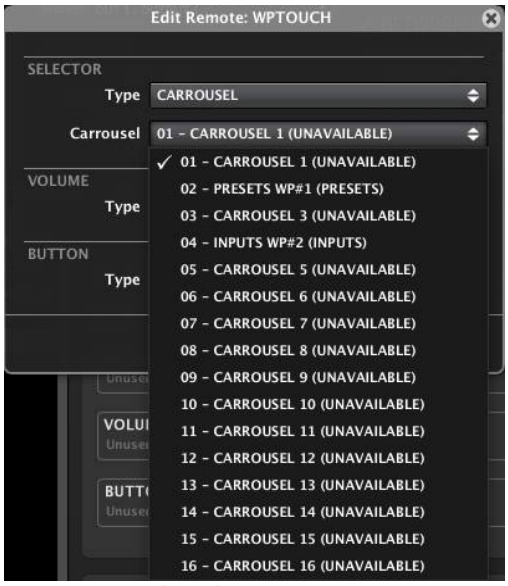


The configuration of a digital remote control as the WPTOUCH depends on a Project but not on a *Preset* (you can't save distinct WPTOUCH settings in different *Presets* within the same Project).

The first option to select for the unit is the control wheel function in Selection mode:

- *NONE*: selection function is disabled for this WPTOUCH unit
- *CAROUSEL*: selection function is enabled

When selecting the CAROUSEL mode, a new menu appears to select which carousel list (it must have been previously created) will be assigned to the unit. A carousel list contains the available options for selecting either the input sound sources (Inputs) or the MIMO88 *Presets* from a WPTOUCH unit in Selection mode. See section: **7.11 Carousel lists for MIMO88** for more information about the creation of carousel lists.



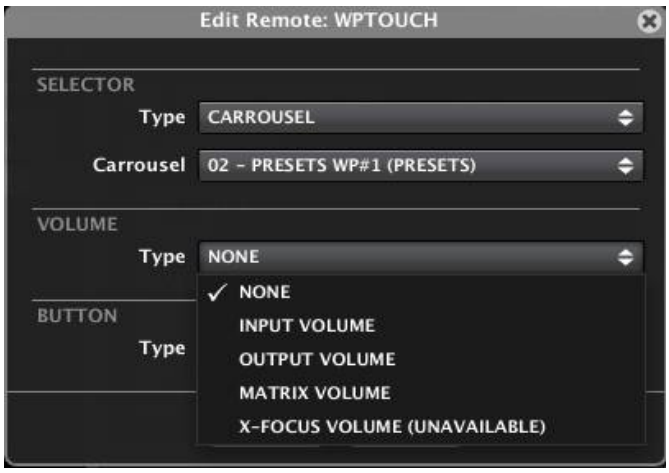
Depending on whether you select a **carousel of inputs or *Presets***, configuration options will differ from this point:

7.10.1.1. Configuring the WPTOUCH for operating with a carousel of Presets

After selecting a carousel list of *Presets* for the Selection mode of a WPTOUCH, you can make this selection from the WPTOUCH unit as follows:

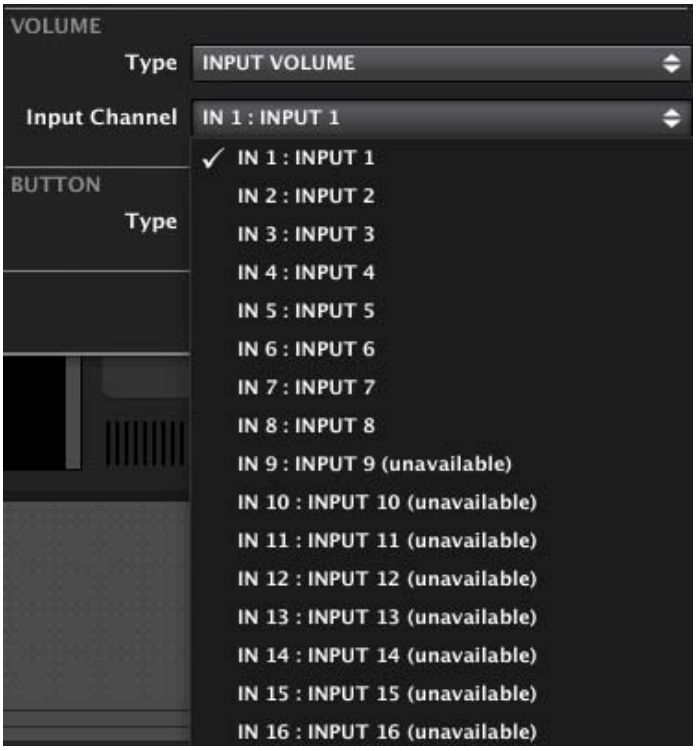
- pressing T2 switches to the Selection mode (the triangular icon to the right of the LCD screen moves up to the upper row)
- with the wheel, select one of the *Presets* contained in the carousel list
- pressing T2 again confirms the selection, the *Preset* is recalled and the triangular icon returns on the bottom row (back to Volume mode). If T2 is not pressed again, the selection is not validated, no *Preset* is recalled and the Volume mode automatically returns after a few seconds (triangular icon on the bottom row of the LCD)

The following configuration function (VOLUME) lets you select which volume the WPTOUCH wheel controls in the other mode, the Volume mode (when the triangle is on the right of the bottom row of the LCD).

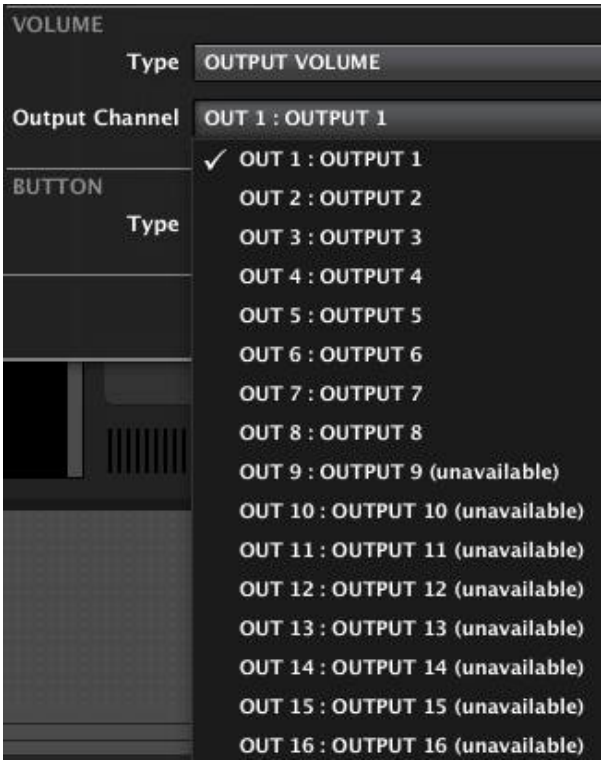


The available options for the VOLUME function are:

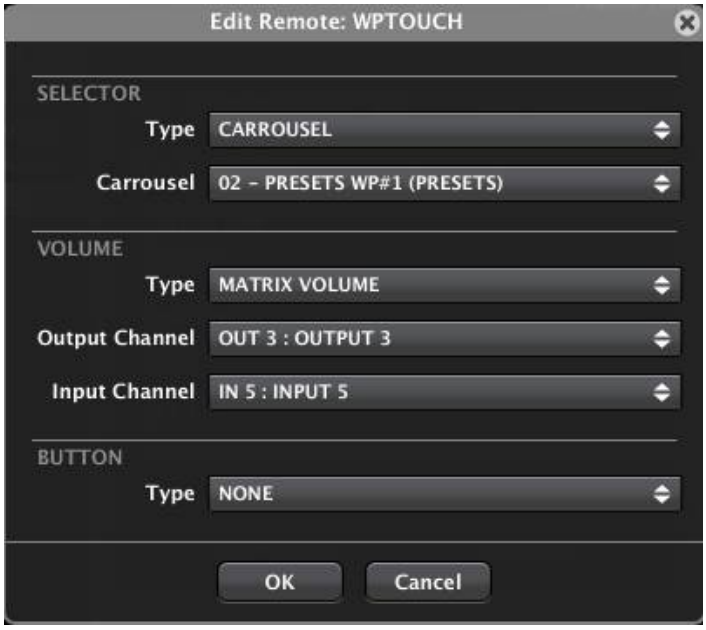
- *NONE*: Volume mode disabled
- *INPUT VOLUME*: any input of the MIMO88 unit:

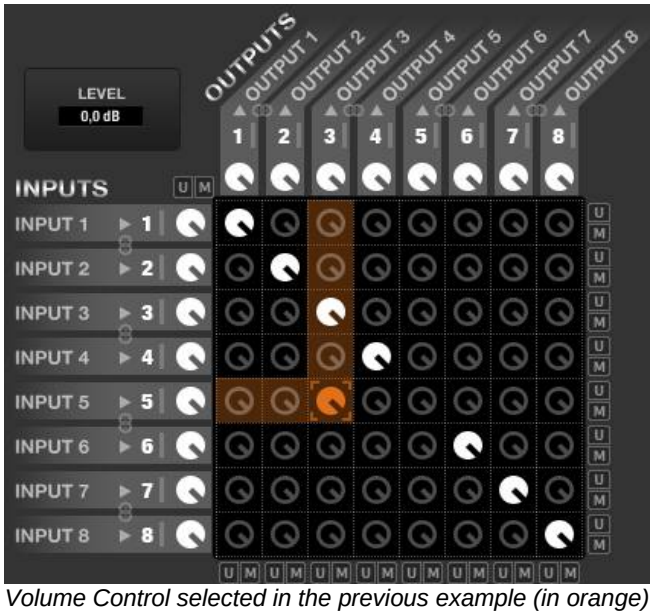

VOLUME
Type
INPUT VOLUME
Input Channel
IN 1 : INPUT 1
BUTTON
Type
✓ IN 1 : INPUT 1
IN 2 : INPUT 2
IN 3 : INPUT 3
IN 4 : INPUT 4
IN 5 : INPUT 5
IN 6 : INPUT 6
IN 7 : INPUT 7
IN 8 : INPUT 8
IN 9 : INPUT 9 (unavailable)
IN 10 : INPUT 10 (unavailable)
IN 11 : INPUT 11 (unavailable)
IN 12 : INPUT 12 (unavailable)
IN 13 : INPUT 13 (unavailable)
IN 14 : INPUT 14 (unavailable)
IN 15 : INPUT 15 (unavailable)
IN 16 : INPUT 16 (unavailable)

- *OUTPUT VOLUME*: any output of the MIMO88 unit:


VOLUME
Type
OUTPUT VOLUME
Output Channel
OUT 1 : OUTPUT 1
BUTTON
Type
✓ OUT 1 : OUTPUT 1
OUT 2 : OUTPUT 2
OUT 3 : OUTPUT 3
OUT 4 : OUTPUT 4
OUT 5 : OUTPUT 5
OUT 6 : OUTPUT 6
OUT 7 : OUTPUT 7
OUT 8 : OUTPUT 8
OUT 9 : OUTPUT 9 (unavailable)
OUT 10 : OUTPUT 10 (unavailable)
OUT 11 : OUTPUT 11 (unavailable)
OUT 12 : OUTPUT 12 (unavailable)
OUT 13 : OUTPUT 13 (unavailable)
OUT 14 : OUTPUT 14 (unavailable)
OUT 15 : OUTPUT 15 (unavailable)
OUT 16 : OUTPUT 16 (unavailable)

- *MATRIX VOLUME*: any crossing point between an input and an output of the matrix (in this example the crossing point between input 5 and output 3, or amount of signal sent from input 5 to output 3, represented in the matrix by the control *knob* of the intersection):

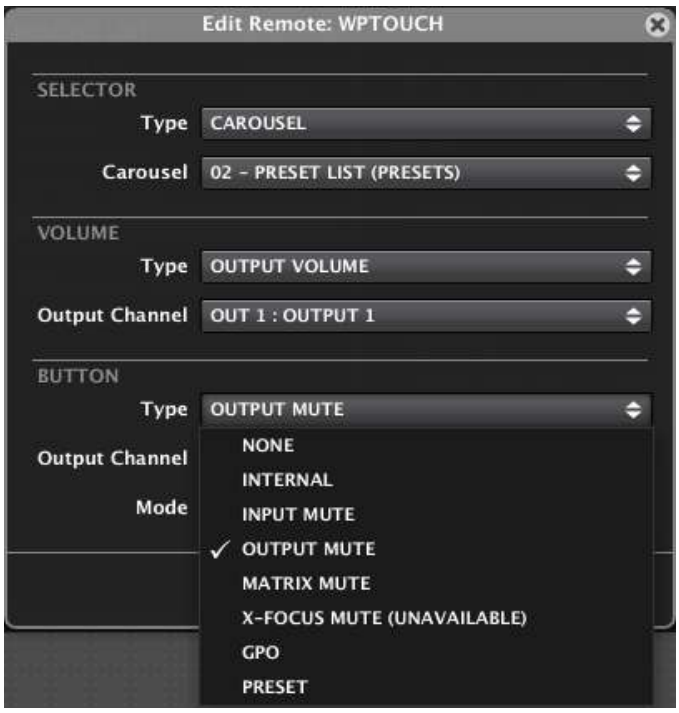




Volume Control selected in the previous example (in orange)

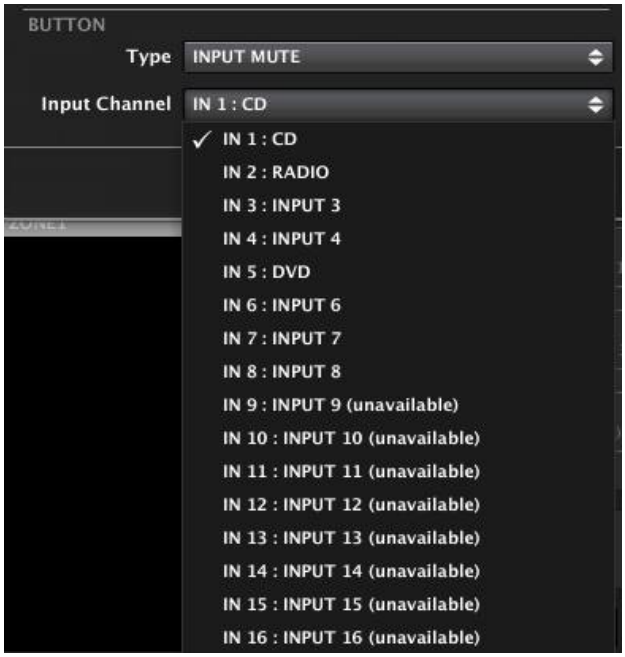
- X-FOCUS VOLUME: not available when the WPTOUCH manages a carousel list of *Presets*. See **7.10.1.2. WPTOUCH configuration** to operate with a **carousel of inputs**

The following configuration function (BUTTON) selects the function assigned to the T1 key of the WPTOUCH.

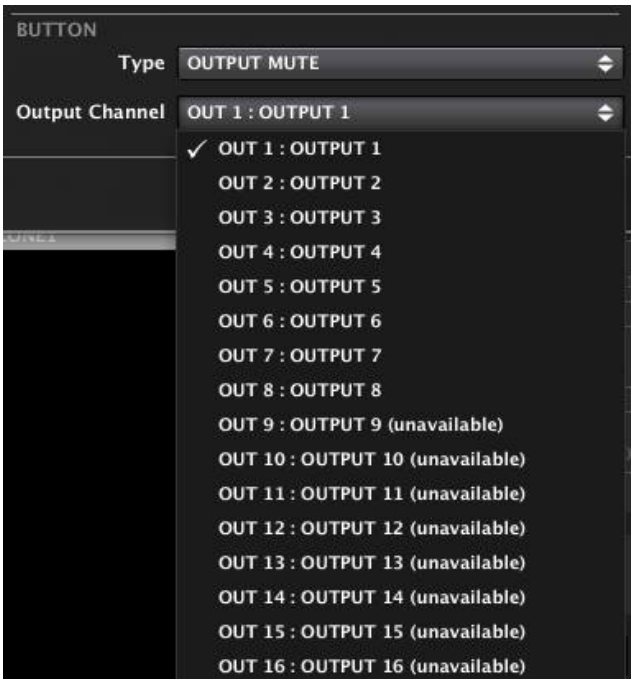


The available options for the BUTTON function are:

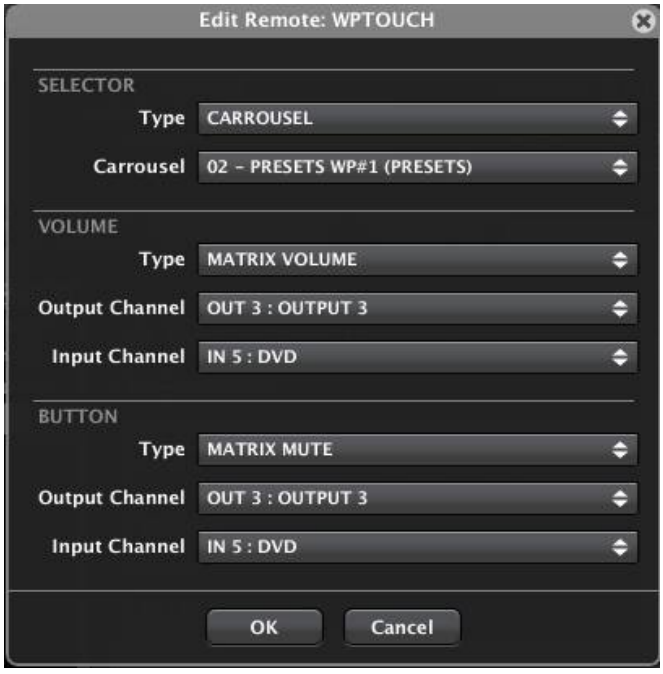
- *NONE*: T1 key disabled
- *INTERNAL*: internal output (without direct link to a function) that can be used as input for events
- *INPUT MUTE*: mutes any input of the MIMO88 unit:


BUTTON
Type
INPUT MUTE
Input Channel
IN 1 : CD
IN 1 : CD
IN 2 : RADIO
IN 3 : INPUT 3
IN 4 : INPUT 4
IN 5 : DVD
IN 6 : INPUT 6
IN 7 : INPUT 7
IN 8 : INPUT 8
IN 9 : INPUT 9 (unavailable)
IN 10 : INPUT 10 (unavailable)
IN 11 : INPUT 11 (unavailable)
IN 12 : INPUT 12 (unavailable)
IN 13 : INPUT 13 (unavailable)
IN 14 : INPUT 14 (unavailable)
IN 15 : INPUT 15 (unavailable)
IN 16 : INPUT 16 (unavailable)

- *OUTPUT MUTE*: mutes any output of the MIMO88 unit:


BUTTON
Type
OUTPUT MUTE
Output Channel
OUT 1 : OUTPUT 1
✓ OUT 1 : OUTPUT 1
OUT 2 : OUTPUT 2
OUT 3 : OUTPUT 3
OUT 4 : OUTPUT 4
OUT 5 : OUTPUT 5
OUT 6 : OUTPUT 6
OUT 7 : OUTPUT 7
OUT 8 : OUTPUT 8
OUT 9 : OUTPUT 9 (unavailable)
OUT 10 : OUTPUT 10 (unavailable)
OUT 11 : OUTPUT 11 (unavailable)
OUT 12 : OUTPUT 12 (unavailable)
OUT 13 : OUTPUT 13 (unavailable)
OUT 14 : OUTPUT 14 (unavailable)
OUT 15 : OUTPUT 15 (unavailable)
OUT 16 : OUTPUT 16 (unavailable)

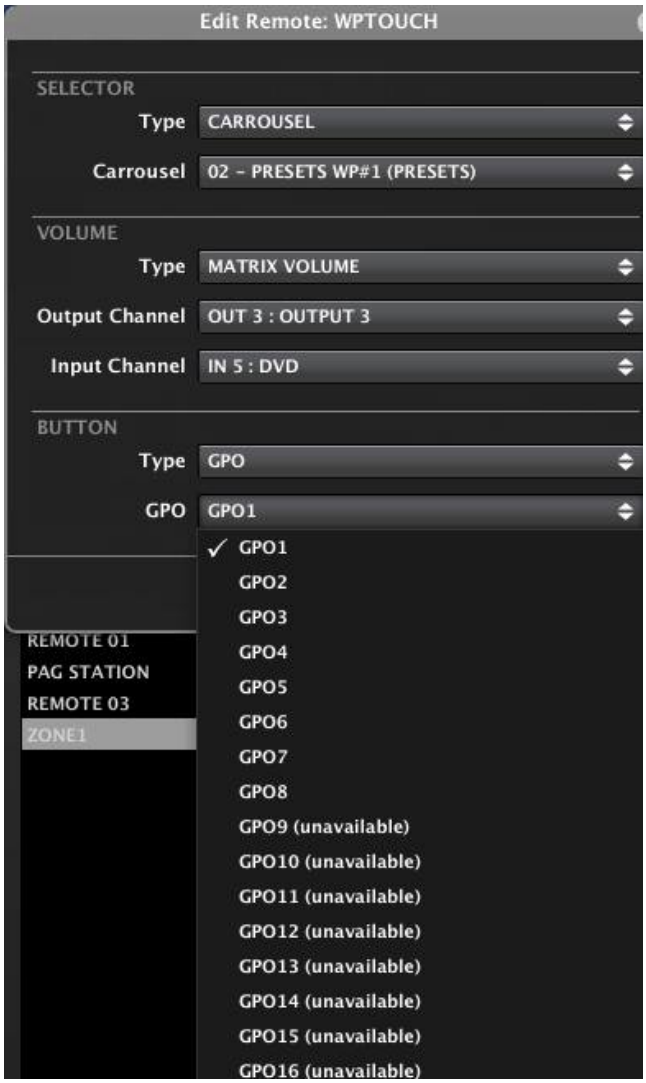
- *MATRIX MUTE*: mutes any crossing point between an input and an output of the matrix (in this example the crossing point between input 5 and output 3, or signal sent from input 5 to output 3, represented in the matrix by the control *knob* of the intersection: MUTE is ON when unfilled and OFF when filled with white colour:



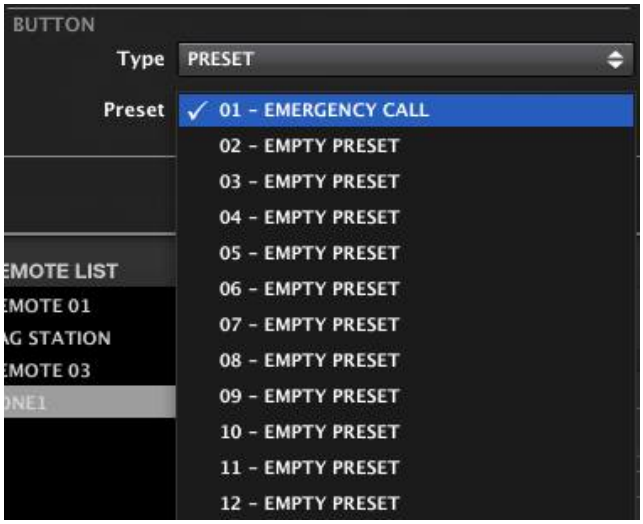
MUTE OFF for input 5 – output 3 (send enabled)

MUTE ON for input 5 –output 3 (send disabled)

- *X-FOCUS MUTE*: not available when the WPTOUCH manages a carousel list of *Presets*. See **7.10.1.2 WPTOUCH configuration** to operate with a **carousel of inputs**
- *GPO*: activation/deactivation of one of the MIMO88's GPO relays. In the WPTOUCH LCD, an asterisk appears when the function is activated and disappears when the function is deactivated (by successively pressing T1):



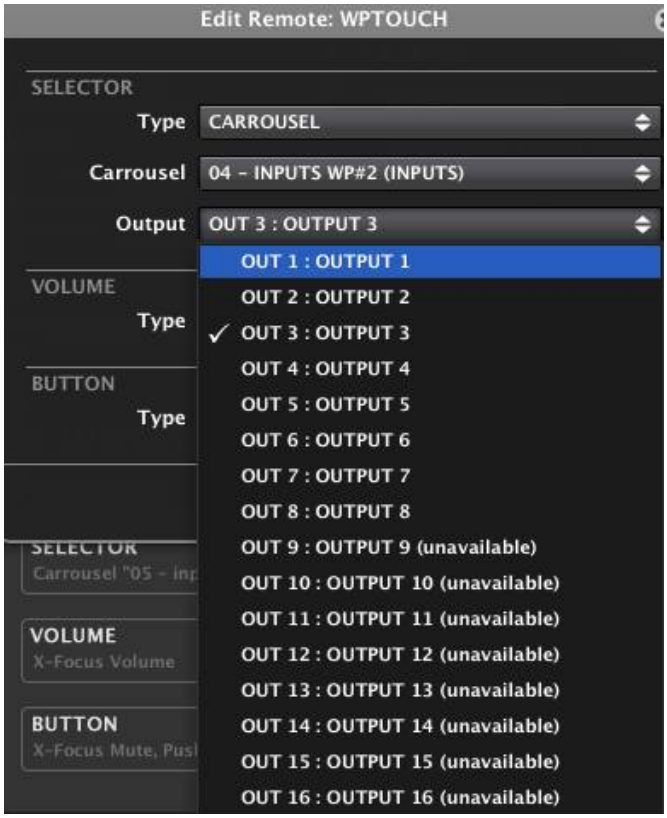
- *PRESET*: to load one of the *Presets* in the MIMO88 memory. In the WPTOUCH LCD, an asterisk appears when the function is activated and disappears when the function is deactivated (by successively pressing T1):



7.10.1.2. Configuring the WPTOUCH for operating with a carousel of inputs

A carousel list of inputs allows you to select which input will feed a particular output from a WPTOUCH acting as a selector of music sources for a destination zone (input selector for the matrix outputs). There may be up to 16 WPTOUCH units in one MIMO88 system (8x8 or 16x16), each one with the ability to select the audio content for the zone it is assigned to. See section: **7.11 Carousel lists for MIMO88** for more information about the creation of carousel lists.

Selecting CAROUSEL in the SELECTOR function opens a menu to select the desired carousel list. Selecting a carousel list of inputs opens a new menu that lets you decide which system output will be linked to the input selection or in other words what destination zone (output) is controlled by this WPTOUCH unit:

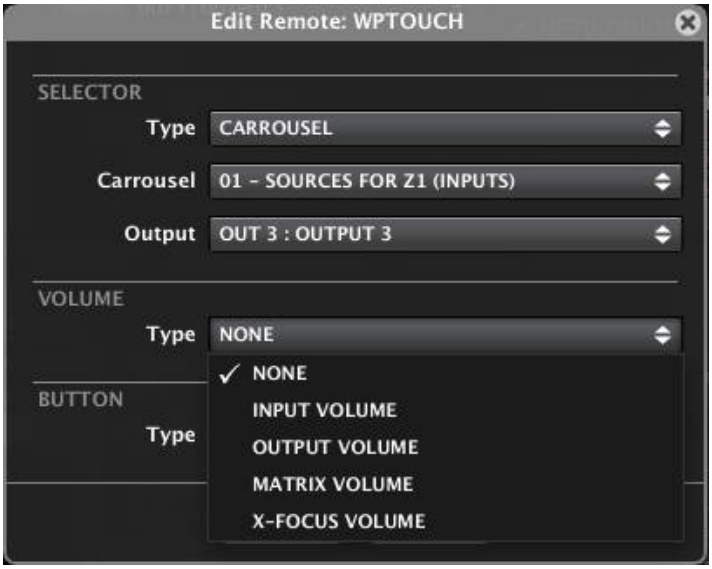


In the example we have selected a carousel list of inputs (called INPUTS WP#2) to enable input selection in this list for Output 3. This WPTOUCH unit will then behave as a sound source selector for the Zone 3 of the system.

After selecting a carousel list of inputs for the Selection mode of a WPTOUCH, you can make the selection from the WPTOUCH unit as follows:

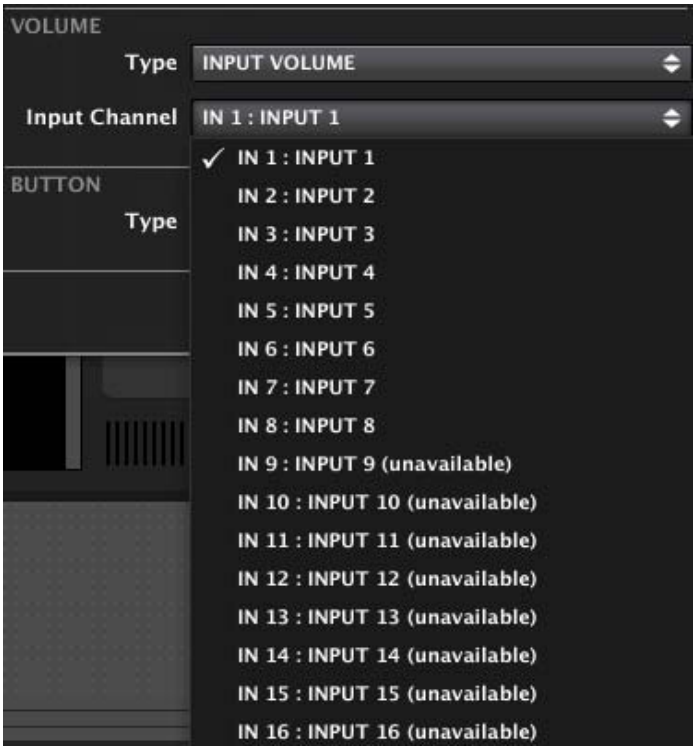
- pressing T2 switches to the Selection mode (the triangular icon to the right of the LCD screen moves up to the upper row)
- with the wheel, select one of the inputs contained in the carousel list
- pressing T2 again confirms the selection, the matrix is set to route the selected input to the assigned output and the triangular icon returns on the bottom row (back in Volume Mode)

The following configuration function (VOLUME) lets you select which volume the WPTOUCH wheel controls in the other mode, the Volume mode (when the triangle is by default on the right of the bottom row of the LCD).

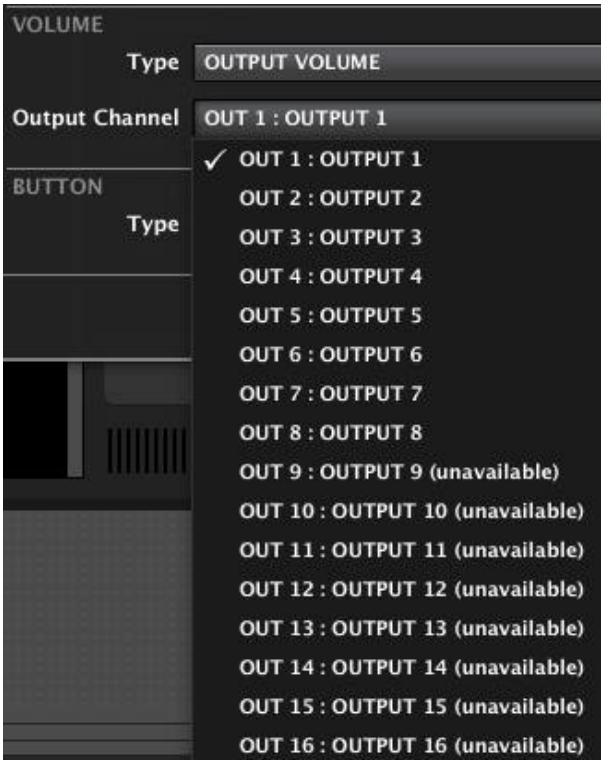


The available options for the VOLUME function are:

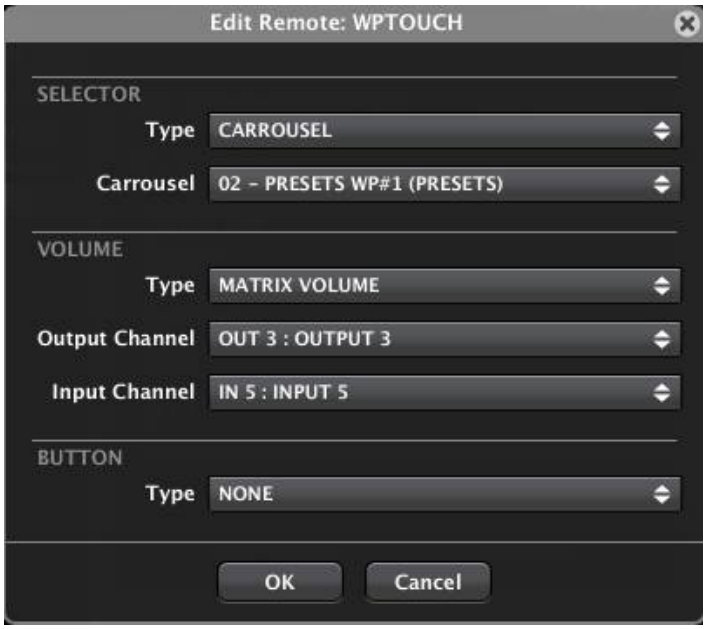
- *NONE*: Volume mode disabled
- *INPUT VOLUME*: any input of the MIMO88 unit:

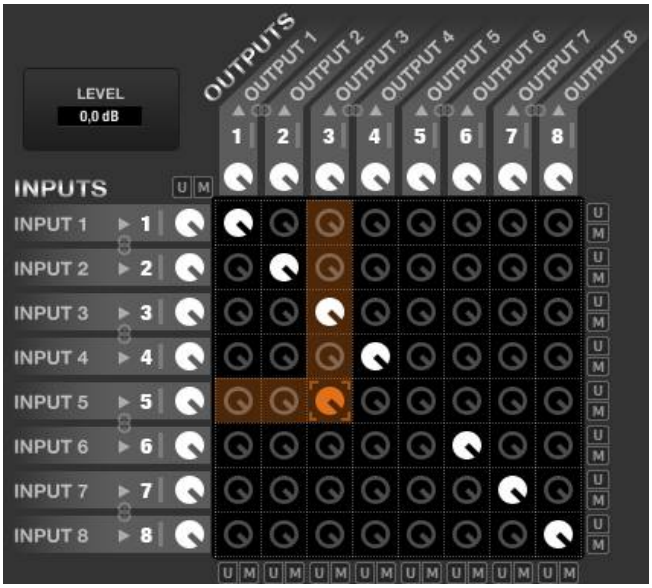

VOLUME
Type
INPUT VOLUME
Input Channel
IN 1 : INPUT 1
IN 1 : INPUT 1
IN 2 : INPUT 2
IN 3 : INPUT 3
IN 4 : INPUT 4
IN 5 : INPUT 5
IN 6 : INPUT 6
IN 7 : INPUT 7
IN 8 : INPUT 8
IN 9 : INPUT 9 (unavailable)
IN 10 : INPUT 10 (unavailable)
IN 11 : INPUT 11 (unavailable)
IN 12 : INPUT 12 (unavailable)
IN 13 : INPUT 13 (unavailable)
IN 14 : INPUT 14 (unavailable)
IN 15 : INPUT 15 (unavailable)
IN 16 : INPUT 16 (unavailable)
BUTTON
Type

- *OUTPUT VOLUME*: any output of the MIMO88 unit:


VOLUME
Type
OUTPUT VOLUME
Output Channel
OUT 1 : OUTPUT 1
BUTTON
Type
✓ OUT 1 : OUTPUT 1
OUT 2 : OUTPUT 2
OUT 3 : OUTPUT 3
OUT 4 : OUTPUT 4
OUT 5 : OUTPUT 5
OUT 6 : OUTPUT 6
OUT 7 : OUTPUT 7
OUT 8 : OUTPUT 8
OUT 9 : OUTPUT 9 (unavailable)
OUT 10 : OUTPUT 10 (unavailable)
OUT 11 : OUTPUT 11 (unavailable)
OUT 12 : OUTPUT 12 (unavailable)
OUT 13 : OUTPUT 13 (unavailable)
OUT 14 : OUTPUT 14 (unavailable)
OUT 15 : OUTPUT 15 (unavailable)
OUT 16 : OUTPUT 16 (unavailable)

- *MATRIX VOLUME*: any crossing point between an input and an output of the matrix (in this example the crossing point between input 5 and output 3, or amount of signal sent from input 5 to output 3, represented in the matrix by the control *knob* of the intersection):



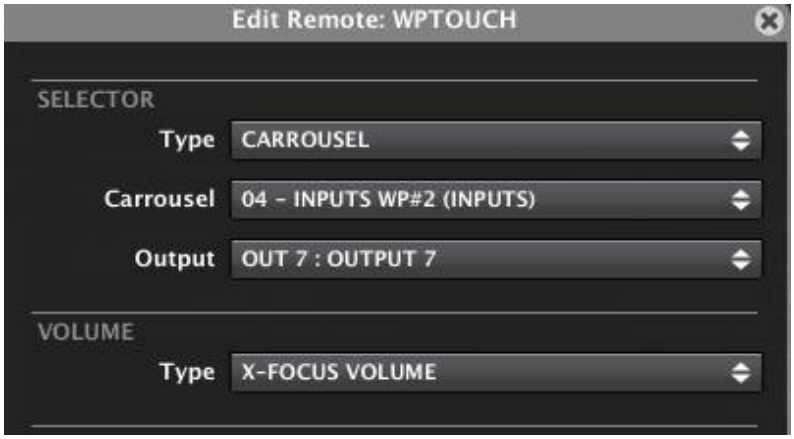


Volume Control selected in the previous example (in orange)

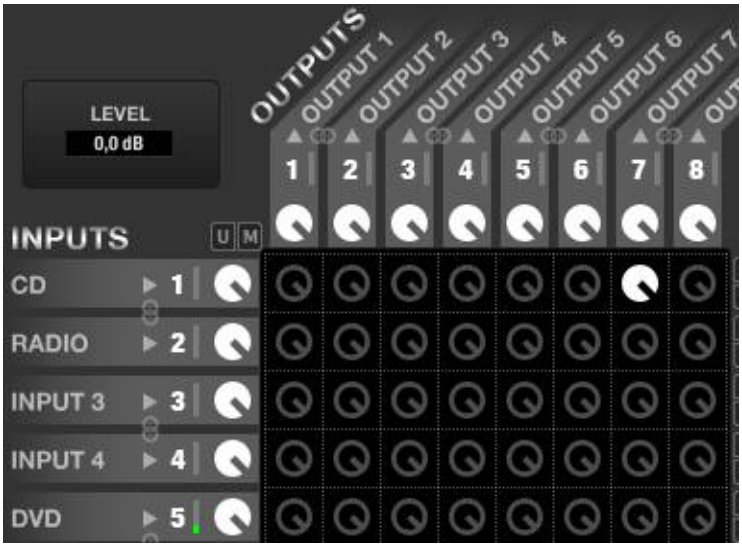
- *X-FOCUS VOLUME*: **X-FOCUS** ("Cross-Focus") means the active crossing point in a carousel list of sound sources (inputs) for the assigned output. It is selected by programming the WPTOUCH unit. In other words, when a WPTOUCH is programmed for its Selection mode to choose an input in a carousel list, the X-Focus is the selection made at a given time, i.e. the input selected as audio content for the assigned output.

  So, if you select the X-FOCUS VOLUME for the VOLUME function and have a look at what happens in the matrix, the WPTOUCH always operate the rotary volume control located at the intersection of the selected input and assigned output.

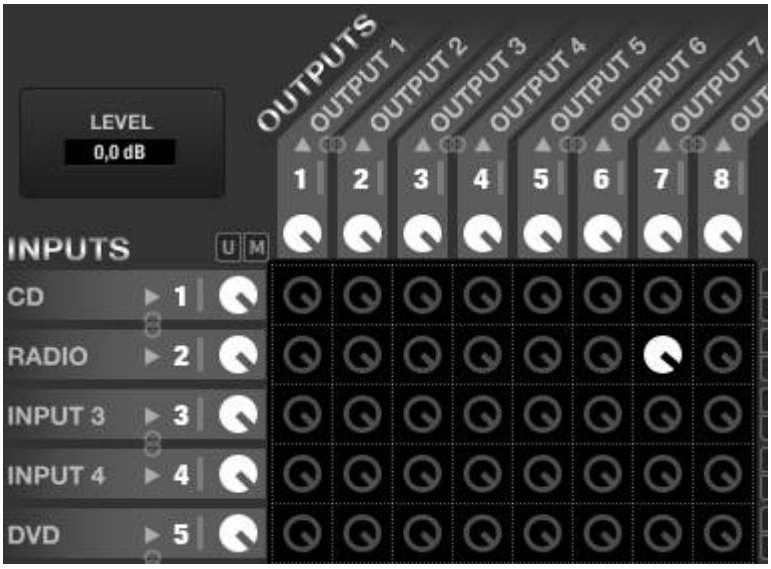
Example: let's create a carousel list of sound sources, or matrix inputs (see section: **7.11. Carousel lists for MIMO88**) including inputs 1. CD, 2. RADIO and 5. DVD, and let's assign a WPtouch managing the output 7 of the matrix:



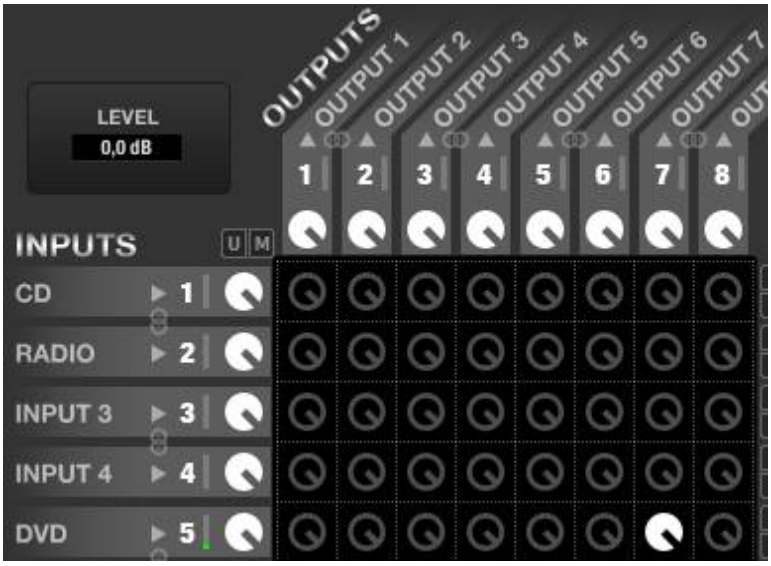
In "Selection" mode, you can cyclically select which input (1, 2 or 5) will be sent to output 7. Once one of them is selected, the wheel controls in Volume mode the crossing point of the selected input (1, 2 or 5) and output 7: the amount of signal sent from the selected input to output 7. If the selection changes, the volume wheel controls the new input/output crossing point selected.



Input 1 (CD) selected as sound source for output 7. In X-Focus mode the volume control operates the crossing point between input 1 and output 7 (filled in white in the picture)

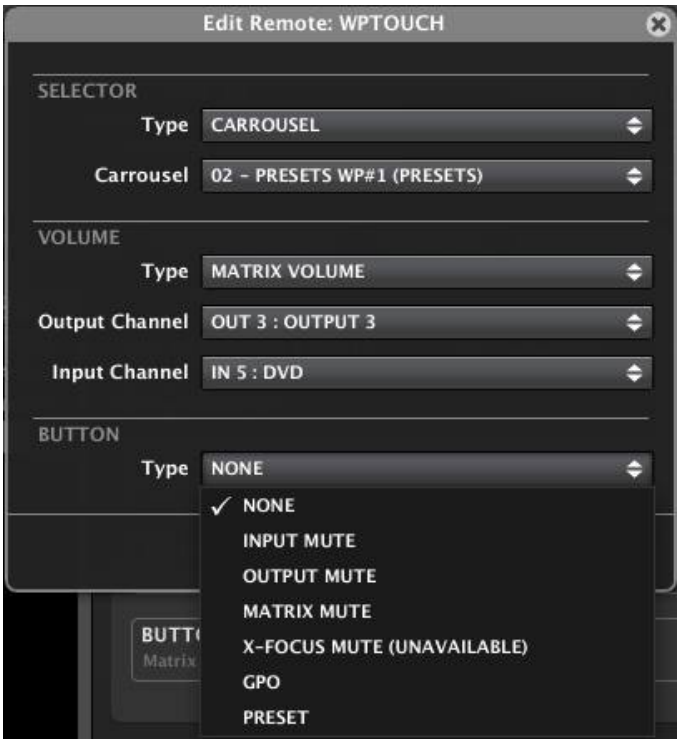


Input 2 (RADIO) selected as sound source for output 7. In X-Focus mode the volume control operates the crossing point between input 2 and output 7 (filled in white in the picture)



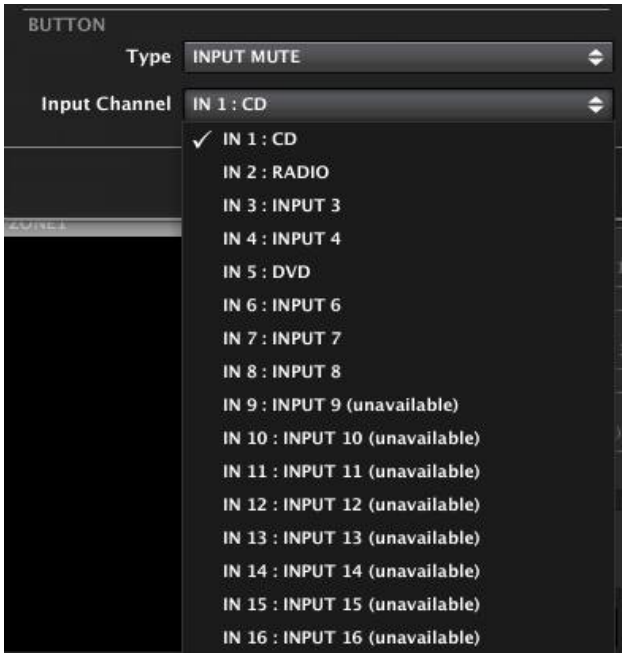
Input 5 (DVD) selected as sound source for output 7. In X-Focus mode the volume control operates the crossing point between input 5 and output 7 (filled in white in the picture)

The following configuration function (BUTTON) selects the function assigned to the T1 key of the WPTOUCH.

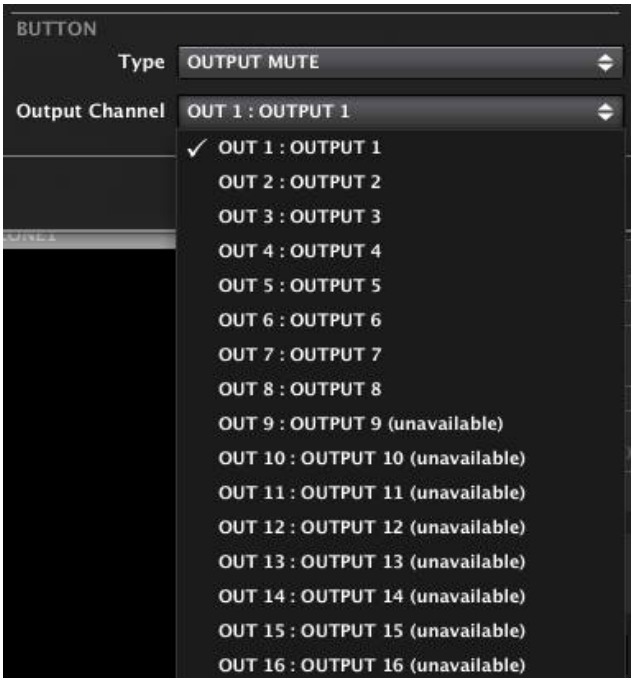


The available options for the BUTTON function are:

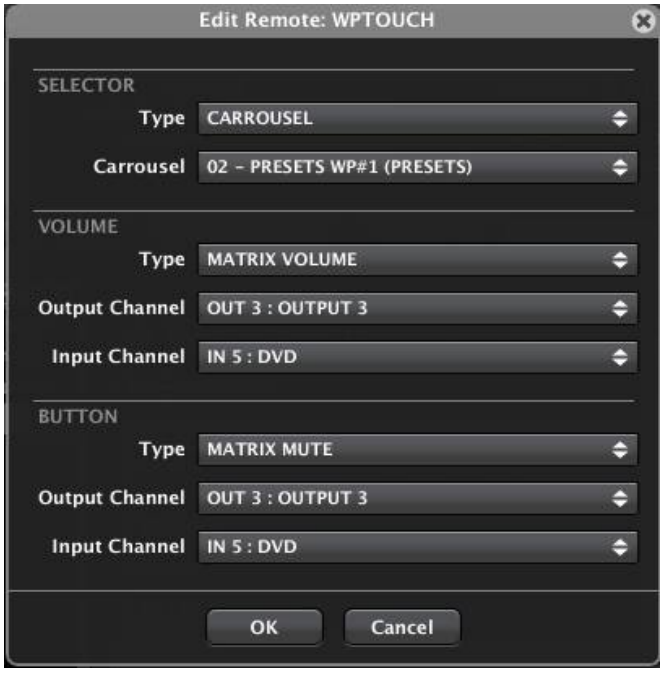
- *NONE*: T1 key disabled
- *INPUT MUTE*: mutes any input of the MIMO88 unit:


BUTTON
Type
INPUT MUTE
Input Channel
IN 1 : CD
✓ IN 1 : CD
IN 2 : RADIO
IN 3 : INPUT 3
IN 4 : INPUT 4
IN 5 : DVD
IN 6 : INPUT 6
IN 7 : INPUT 7
IN 8 : INPUT 8
IN 9 : INPUT 9 (unavailable)
IN 10 : INPUT 10 (unavailable)
IN 11 : INPUT 11 (unavailable)
IN 12 : INPUT 12 (unavailable)
IN 13 : INPUT 13 (unavailable)
IN 14 : INPUT 14 (unavailable)
IN 15 : INPUT 15 (unavailable)
IN 16 : INPUT 16 (unavailable)

- *OUTPUT MUTE*: mutes any output of the MIMO88 unit:

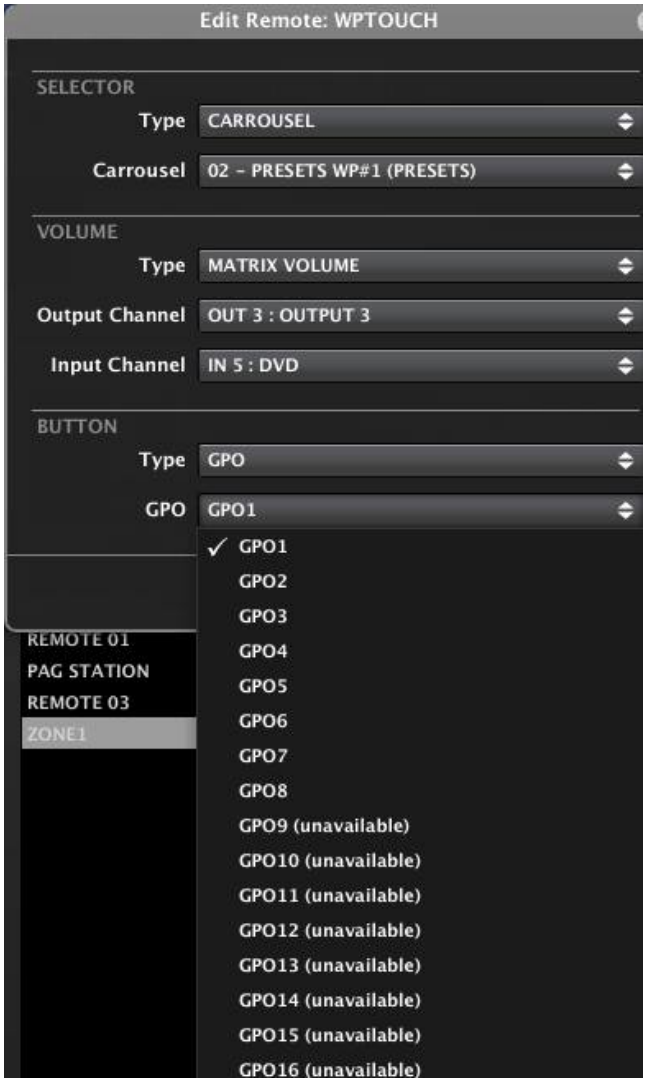

BUTTON
Type
OUTPUT MUTE
Output Channel
OUT 1 : OUTPUT 1
✓ OUT 1 : OUTPUT 1
OUT 2 : OUTPUT 2
OUT 3 : OUTPUT 3
OUT 4 : OUTPUT 4
OUT 5 : OUTPUT 5
OUT 6 : OUTPUT 6
OUT 7 : OUTPUT 7
OUT 8 : OUTPUT 8
OUT 9 : OUTPUT 9 (unavailable)
OUT 10 : OUTPUT 10 (unavailable)
OUT 11 : OUTPUT 11 (unavailable)
OUT 12 : OUTPUT 12 (unavailable)
OUT 13 : OUTPUT 13 (unavailable)
OUT 14 : OUTPUT 14 (unavailable)
OUT 15 : OUTPUT 15 (unavailable)
OUT 16 : OUTPUT 16 (unavailable)

- *MATRIX MUTE*: mutes any crossing point between an input and an output of the matrix (in this example the crossing point between input 5 and output 3, or signal sent from input 5 to output 3, represented in the matrix by the control *knob* of the intersection: MUTE is ON when unfilled and OFF when filled with white colour:

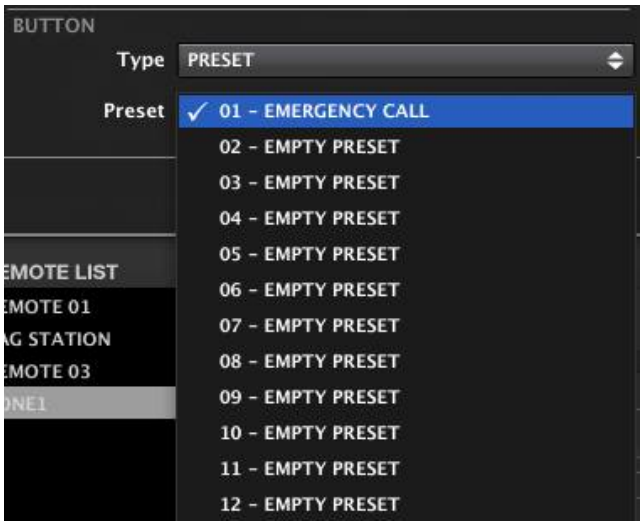


MUTE OFF for input 5 – output 3 (send enabled) *MUTE ON for input 5 –output 3 (send disabled)*

- *X-FOCUS MUTE*: similar to X-FOCUS VOLUME, but in this case the T1 key behaves like a mute remote control for X-Focus point, i.e. the point of intersection between the selected input and assigned output.
- *GPO*: activation/deactivation of one of the MIMO88's GPO relays. In the WPTOUCH LCD, an asterisk appears when the function is activated and disappears when the function is deactivated (by successively pressing T1):



- *PRESET*: to load one of the *Presets* in the MIMO88 memory. In the WPTOUCH LCD, an asterisk appears when the function is activated and disappears when the function is deactivated (by successively pressing T1):



Finally, the lower portion of the WPTOUCH configuration screen includes the following controls:

- *LCD BACKLIGHT*: turns the backlight on/off for the WPTOUCH LCD display when touched by the user. When this feature is enabled (ON), the LCD display lights up when touched, the light disappearing within a few seconds after the end of the contact
- *VOLUME MIN* and *VOLUME MAX*: performance range of the volume control from the wheel in Volume mode. It prevents a user to exceed a given maximum volume or to fall below a minimum volume. Default values are respectively 0 and 100%

7.10.2. Configuring a MPAGE16-type remote control

The MPAGE16 is a console or desktop digital station for sending voice messages in real time ("paging"). It features a gooseneck microphone and 16 keys for selecting destination zones (1 to 16), 1 selection key for all zones (ALL), a CLEAR key to cancel the last selection made and an activation key for paging (PAGE). It also has two soft keys (F1 and F2) operating a mute function, a GPO or a *Preset* recall. All keys are touch-sensitive and associated with a status LED.

The configuration of a MPAGE16 console connected to the MIMO88 is very simple:

- First you must include a MPAGE16 unit in the REMOTE LIST. See section: **7.10. MIMO88 REMOTES section**.
- Selecting the desired MPAGE16 unit in the REMOTE LIST displays its detailed configuration window:

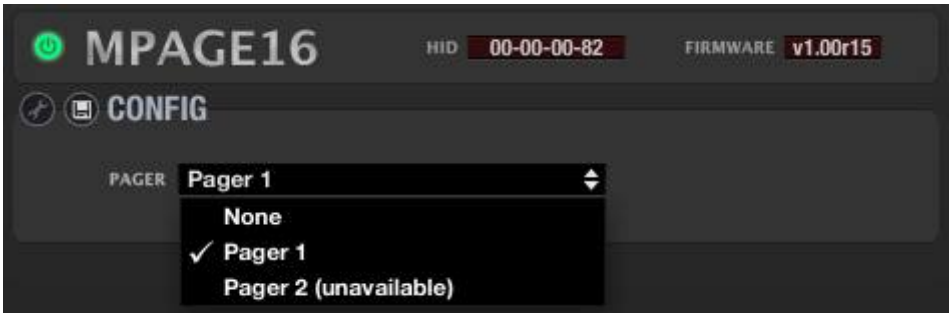
In its upper part, the window includes:

- *Enable/Disable Remote* button: to enable (lit in green) or disable each MPAGE16 unit connected to the MIMO88. The state (enabled or disabled) of all remote controls is stored in a system *Preset* when you save it, so that you can manage at any given time which remote controls are enabled or not by recalling each *Preset* (e.g. when loading a *Preset* for asking to evacuate a building with a pre-recorded message, all remote controls of the installation are disabled to avoid user interferences in such special scenario in which the evacuation message prevails on the rest of the audio signals...).
- *HID* indicator: *hardware* ID (assigned at the factory, unique to each unit and not editable by the user)
- *Firmware* indicator: unit's *firmware* version

Now comes the MPAGE16 configuration area:

- The icon (*Change Configuration*) is not usable with a MPAGE16 unit (but it is for the WPTOUCH for example)
- The (*Save Configuration in Remote*) icon stores the MPAGE16 device configuration

Below appears the drop-down menu for the only setting option of MPAGE16 unit: the PAGER module that will be assigned:



Each MIMO88 unit has a maximum of two DUCKER or PAGER *software* modules, each of which can be assigned a *hardware* MPAGE16 unit.

See section: **7.8. MIMO88 PAGERS/DUCKERS section** to know how these modules operate and how destination zones are enabled or disabled for MPAGE16 units, etc.

Details of the PAGERS/DUCKERS section from which you configure the operation of a MPAGE16 unit connected to the system

All MPAGE16 keys are dedicated to the *paging* function, except two of them: F1 and F2 that are programmable function keys. See section: **7.12. MIMO88 EVENTS section** to know how to program them for operating a mute function, a GPO or a *Preset* recall.

***Note**: The configuration of a digital remote control as MPAGE16 console or WPTOUCH wall panel depends on a Project but not on a Preset (you can't save distinct WPTOUCH settings in different Presets within the same Project).*

7.10.3. Configuring an ANALOG-type remote control

The third type of remote controls compatible with MIMO88 is analog such as WPVOL-SR (wall panel with knobs performing as volume control and sound source selector). The **INPUT** source selector has 5 possible positions (OFF, 1, 2, 3 and 4). The **LEVEL** volume control is continuous from 0 to 100%.

This type of control is connected to the MIMO88 unit via its GPI ports, not via the digital bus. A GPI port is required for the volume control and another one for the source selector. Additionally, you can connect an external switch (not included in the WPVOL-SR) to a third GPI to perform the X-FOCUS MUTE function (muting the selected sound source).

The settings for a WPVOL-SR type analog control are performed as follows:

To configure a WPVOL-SR type analog control, you must first include an ANALOG unit in the REMOTE LIST. See section: **7.10. MIMO88 REMOTES section**

***Note**: analog controls are passive and therefore not automatically detected by the application, contrary to what happens with the digital WPTOUCH and MPAGE16.*

Once you add such a control, it will be included in the REMOTE LIST. Selecting it opens the configuration window:

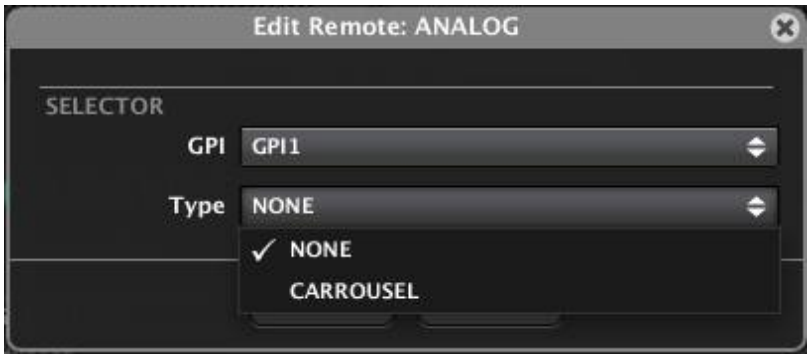
In its upper part, the window includes:

- *Enable/Disable Remote* button: to enable (lit in green) or disable each WPVOL-SR unit connected to the MIMO88. The state (enabled or disabled) of all remote controls is stored in a system *Preset* when you save it, so that you can manage at any given time which remote controls are enabled or not by recalling each *Preset* (e.g. when loading a *Preset* for asking to evacuate a building with a pre-recorded message, all remote controls of the installation are disabled to avoid user interferences in such special scenario in which the evacuation message prevails on the rest of the audio signals...).
- *HID* indicator: *N/A* for analog controls
- *Firmware* indicator: *N/A* for analog controls

Now comes the configuration area:

- icon (*Change Configuration*): to change the unit configuration
- icon (*Save Configuration in Remote*): *N/A* for analog controls

Clicking the icon displays the WPVOL-SR configuration window:

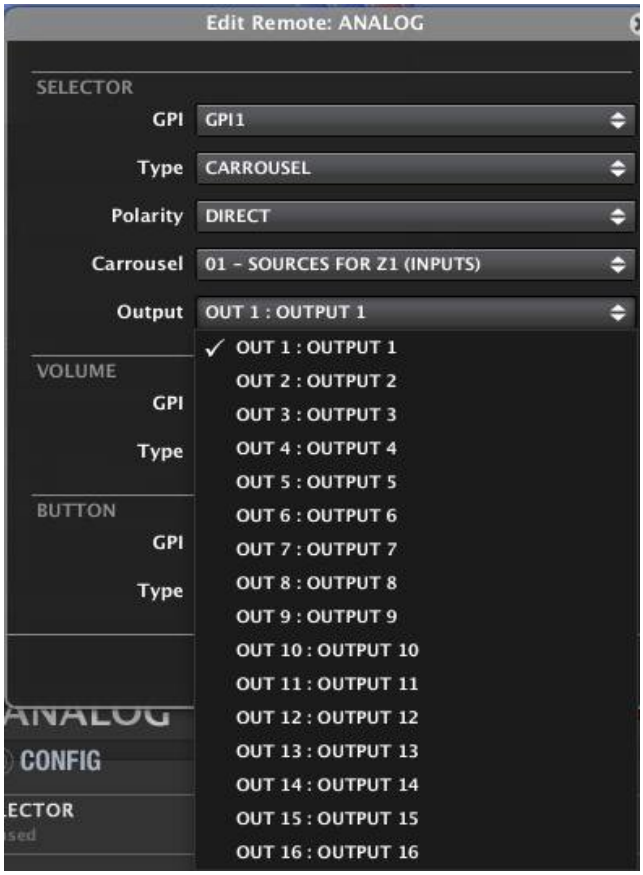


The first parameter to set is the source selection or SELECTOR:

- *GPI*: GPI port that is connected to the **INPUT** discrete potentiometer of the WPVOL-SR unit
- *Type*: select CAROUSEL to allow sound sources or even *Presets* to be selected. After selection, new options are displayed:

The new available options for the SELECTOR function are:

- *Polarity* (DIRECT/INVERSE): determines how the received signal is interpreted in the GPI (0 to 10 VDC): 0 VDC as minimum and 10 VDC as maximum or vice versa. Each position of the WPVOL-SR **INPUT** control (OFF, 1, 2, 3 or 4) provides a voltage from 0 to 10 VDC to its GPI port.
- *Carousel*: carousel list selected for the WPVOL-SR control; it must have been previously created. A carousel list contains the available options for selecting either the input sound sources (Inputs) or the MIMO88 *Presets* from a WPVOL-SR unit with its **INPUT** control. In this case the carousel list may include up to 5 inputs (musical sources) matching the 5 positions of the WPVOL-SR **INPUT** control. If you select a carousel list of *Presets*, it may also contain a maximum of 5 *Presets*. See section: **7.11. Carousel lists for MIMO88** for more information about the creation of carousel lists.
- If the selected carousel list is for inputs (sound sources), a new drop-down menu appears to select the destination output for this selection (destination zone area linked to the selected input in each case, or destination zone controlled by the WPVOL-SR unit):



In the example we have selected a carousel list of inputs (called SOURCES FOR Z1) to enable the selection of an input from this list for output 1. This WPVOL-SR unit will then behave as a sound source selector for the Zone 1 of the system.

The options for the VOLUME function are:

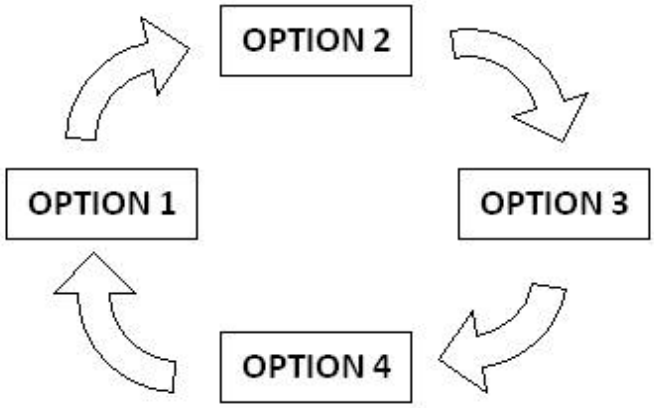
- *GPI*: GPI port that is connected to the **LEVEL** control of the WPVOL-SR unit
- *Type*:
  - *NONE*: no volume function assigned
  - *X-FOCUS VOLUME*: the **LEVEL** control is associated with the volume of the crossover point between the input currently selected by the **INPUT** control and assigned output (destination zone)
- *Polarity* (DIRECT/INVERSE): determines how the received signal is interpreted in the GPI (0 to 10 VDC): 0 VDC as maximum volume and 10 VDC as minimum volume or vice versa.

Additionally, you can add an external mechanical switch or button (not included in the WPVOL-SR panel) to control the X-FOCUS MUTE function (to mute the selection made with the **INPUT** control in the used carousel list):

- *GPI*: GPI port that it is connected to the additional hardware button or switch
- *Type*:
  - *NONE*: no MUTE function assigned
  - *X-FOCUS MUTE*: the button or switch is associated with the MUTE function of the crossover point between the input currently selected by the **INPUT** control and assigned output (destination zone)
- Additional options when the X-FOCUS MUTE type is selected are:
  - *Polarity* (DIRECT/INVERSE): determines how the received signal is interpreted in the GPI (0 or 10 VDC): function is activated for 0 VDC and deactivated for 10 VDC or vice versa.
  - *Mode*: operating mode of the button or switch:
    - *PUSH*: one state when the key is pressed (closed contact) and the opposite state when the key is not pressed. The possible states are MUTE ON and MUTE OFF
    - *TOGGLE*: each push of the button toggles the state between MUTE ON and MUTE OFF.

7.11. Carousel lists for MIMO88

A **carousel list** is a set of selectable options for a remote control connected to a MIMO88 unit, such selection being "circular" (hence the name carousel).
We call circular selection the ability to scroll the various list options via an endless dial, from the first to the last, then indefinitely re-starting from the first in the list and so on, as long as you keep rotating the control in the same direction, either clockwise or counter-clockwise.



*Example of circular list or **carousel list** with 4 available options*

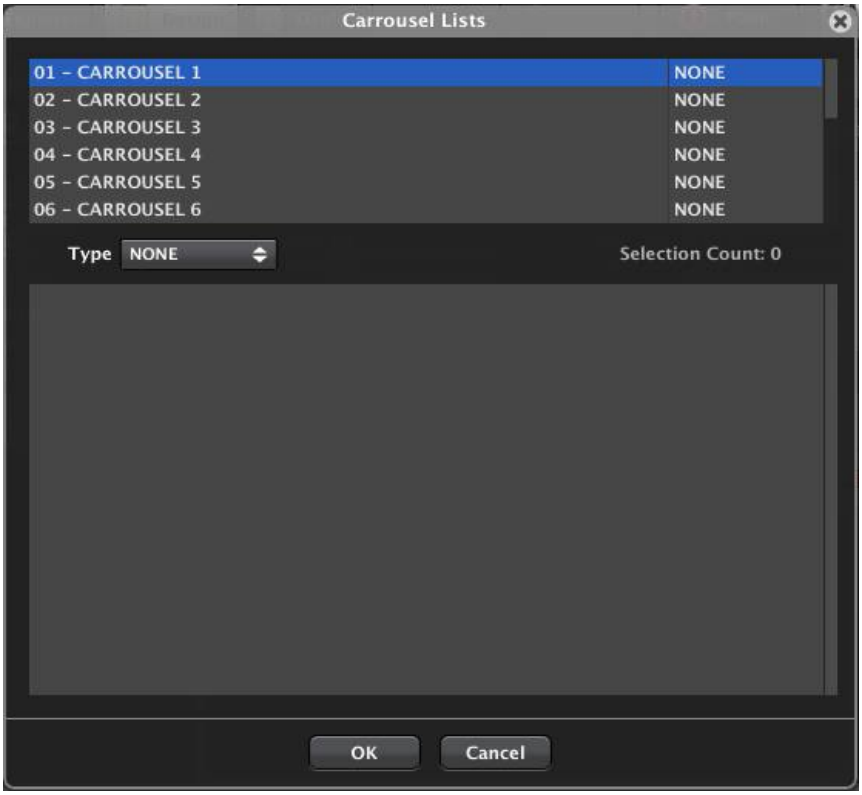
MIMO88 supports two types of carousel lists: for inputs and for *Presets*:

- Carousel list of inputs: contains a series of matrix audio inputs, so that a remote control can select one of them as a sound source sent to a particular audio output of the unit. In other words, in a zoned facility (input with several sound sources and multiple output zones) a remote control managing a particular zone of the facility can use a list of this type to select the audio content to be played in that zone
- Carousel list of *Presets*: contains a series of *Presets* stored in the unit, so that a remote control can select and recall one of them, instantly changing the configuration of the MIMO88 unit according to the parameters recorded in the *Preset*

***Note**: A WPTOUCH or WPVOL-SR type remote control can operate a same Project with **a single carousel list** only, whether of **inputs or Presets**, in order to behave as source selector for a destination zone or as Preset selector to recall a Preset. A single control remote can never have both functions in a same Project, nor operate with several carousel lists. Carousel lists, on the other hand, are common to a single Project and are not related to Presets: lists and their contents are fixed and do not depend on the Preset that selected them.*

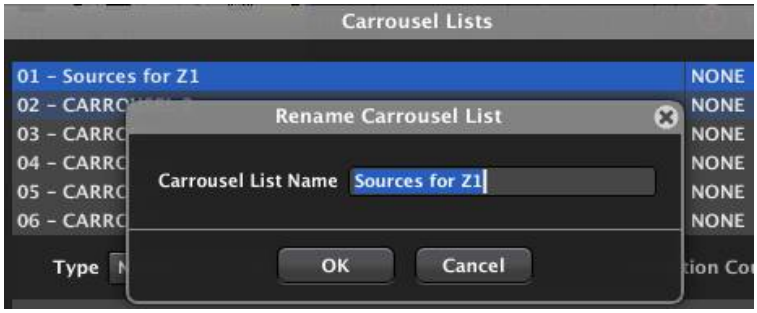
Clicking the icon located in the upper right corner of a MIMO88 detailed view opens the window for creating and editing carousel lists.

***Note**: as for other functions with a potential risk of structural changes in a Project, carousel list management is available in DESIGN mode only.*

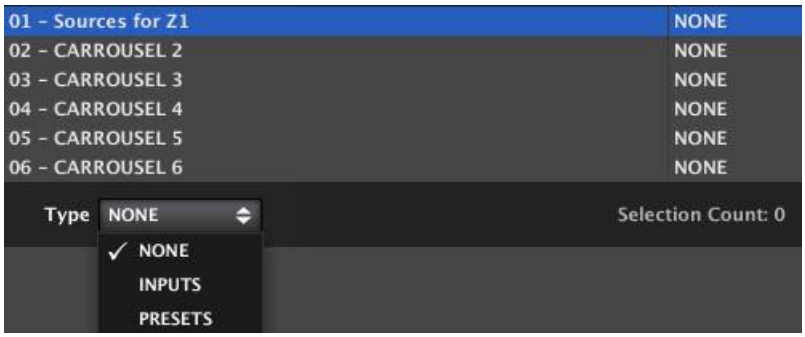


In the upper part of this window, there is a list of the 16 carousel lists that can be created in a Project.

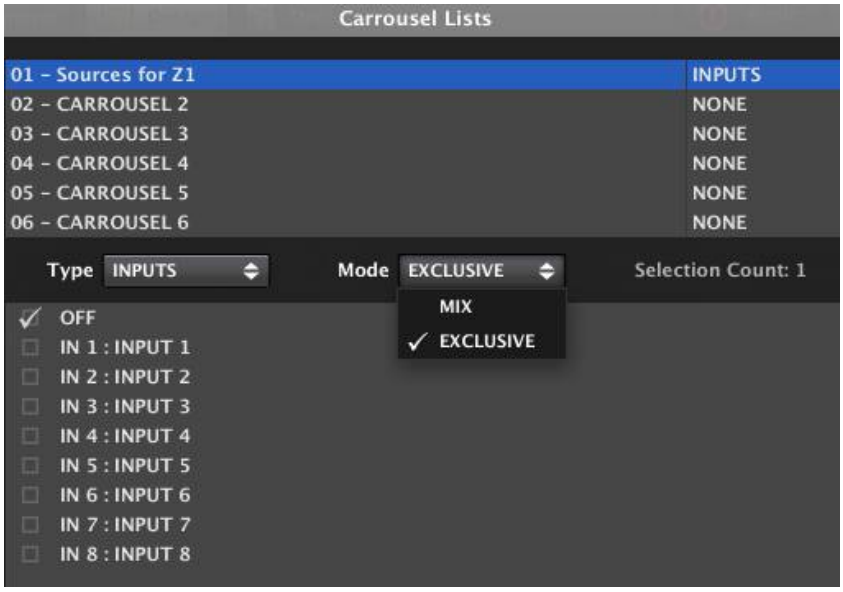
To rename one of them, select it (right button -> *Rename,* or F2 key):



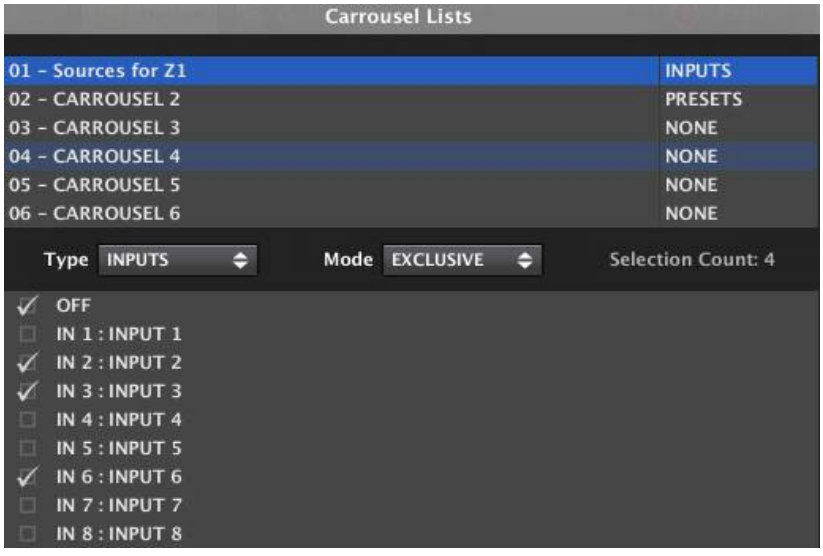
Then you must select the type of list (inputs or *Presets*):



If you select an input list, the window looks like this:



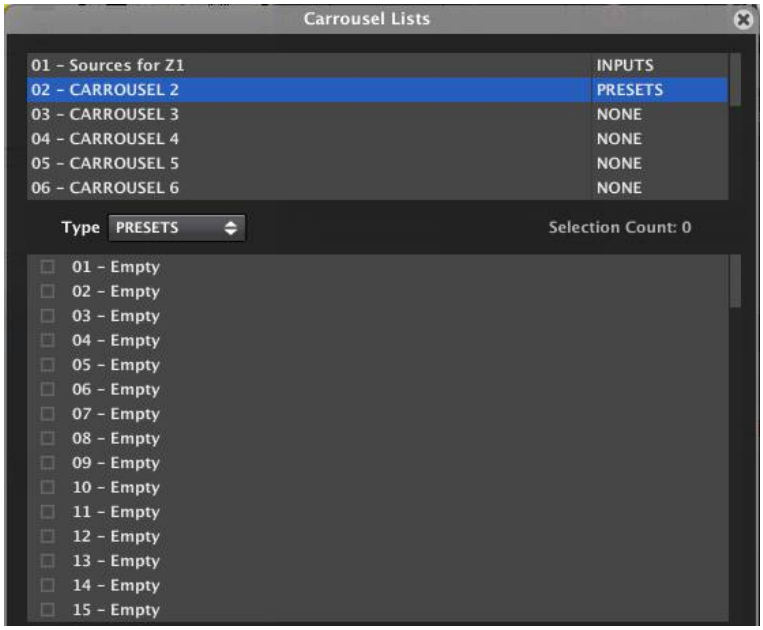
- The list type is displayed on the right: INPUTS or PRESETS
- The drop-down *Mode* menu allows you to choose between two operating modes for the input list:
    - *MIX*: when several inputs are successively selected in the list, they are mixed together and sent to the destination output. The remote control then behaves like a small mixer, rather than as a pure sound source selector (in X-Focus mode the volume control will adjust the relative level of each input in the mix)
    - *EXCLUSIVE*: only one input can be selected and routed to the destination output. Selecting an input in the list excludes the others: the other crossing points between list inputs and destination output have a MUTE ON status
- *Selection Count*: number of inputs in the list (the maximum is 16)
- Input list for the unit: its options are OFF (no = silence) and inputs 1 to 8 or 1 to 16, depending on whether it is a single MIMO88 (8x8) or a MASTER-SLAVE couple (16x16). To add or remove an input to/from the carousel list, click on the check box on its left:



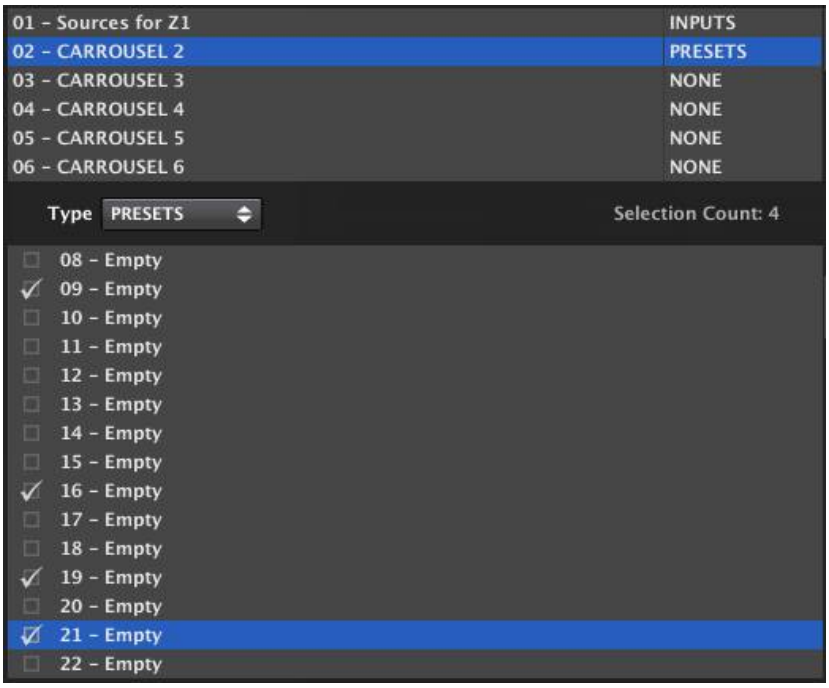
Example of carousel list containing the inputs OFF (silence), 2, 3 and 6

Once the changes are validated (OK key) the list will be configured and available for selection from one or more WPTOUCH or WPVOL-SR remote controls.

If, on the contrary, you select a *Presets* list, the window looks like this:



- The list type is displayed on the right: INPUTS or PRESETS (in this case PRESETS)
- *Selection Count*: number of *Presets* in the list (the maximum is 16)
- *Presets* list for the unit: contains the 99 *Presets* available in the MIMO88 (you have to scroll down the list to see them all). To add or remove a *Preset* to/from the carousel list, click on the check box on its left:



Example of carousel list containing the Presets 9, 16, 19 and 21

Once the changes are validated (OK key) the list will be configured and available for selection from one or more WPTOUCH or WPVOL-SR remote controls.

7.12. MIMO88 EVENTS section

A MIMO88 event is a small program routine converting a series of input stimuli (GPI ports, WPTOUCH or MPAGE16 panel keys, etc..) in an action which could affect the value of a parameter (volume control, mute control, etc..), load a *Preset*, enable or disable a GPO, etc.

Events can be of 5 types:

- ANALOG: the stimulus takes a set of values within a range and the target is a control also varying within a range. Example: a potentiometer connected to a GPI as a stimulus and the volume control of an output as the target
- DIGITAL SIMPLE: the stimulus can only take 2 values (1 or 0, open or closed, etc.) and the target as well. Example: a switch connected to a GPI as a stimulus and the mute control of an output as the target
- DIGITAL COMPOUND: as above, but with multiple stimuli: up to 4 individual digital stimuli combined using a Boolean logic gate (AND, OR, NAND, NOR, etc.). Example: two switches connected as stimuli to their respective GPIs triggering a *Preset* (target) when one of them is pressed (using for this an OR-type logic gate)
- DIGITAL DELAY: you can set a delay time between the stimulus detection and the destination triggering or event output, as well as a holding time of this activated status for the output (for example: 10 seconds after detecting an external contact closure connected to a GPI, a relay (GPO) status changes for 90 seconds, then returns to its previous state)
- TIME SCHEDULER: the stimulus input time is based on a calendar with date and time of onset, duration, days of the week it must be activated or not, repetition by time interval or number of repetitions and end date. The MIMO88 has an internal clock that allows the management of such events, even if not connected to a computer and synchronized with EclerNet Manager

Events programming is very simple, consisting of the following steps:

- Selecting the input stimulus (or stimuli) and behaviour settings
- Selecting how stimuli are combined (only for compound digital events)
- Selecting the event target (triggered function)

The maximum number of events for the MIMO88 is 64. Events are stored at the Project or device level, but not in the *Presets.* However, the state (enabled or disabled) for each event (configurable with "Event Enable" from the event editor window) is stored as part of the data stored in each *Preset*, so that recalling a *Preset* also restores the current combination of enabled and disabled events at the time of saving.

Events are manually created and edited from a dedicated control list. Additionally, some events are automatically created when you program a remote control from the REMOTES section, appearing in grey in the list of events as they can only be viewed but not edited.

Clicking on the icon located in the upper right of the application displays the **Events list** in the bottom of the screen:

The list shows created events (manually or automatically) with a number of information fields:

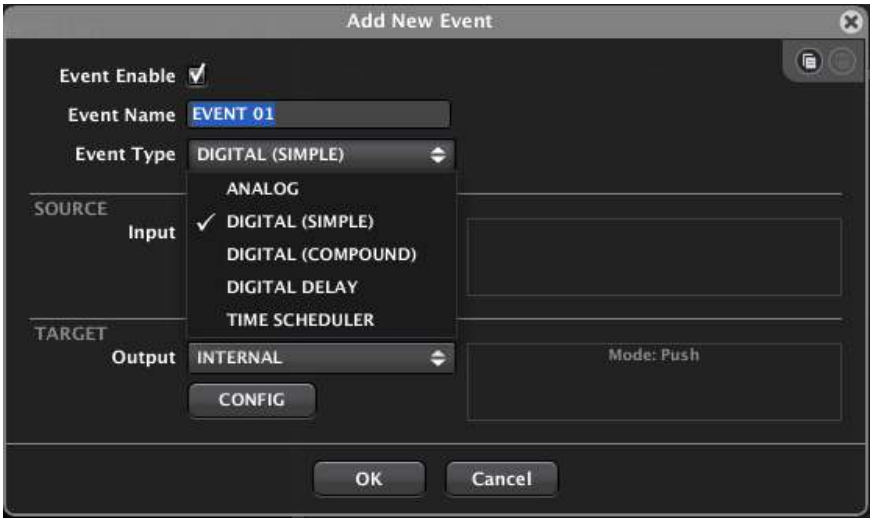
- #: event number in the list
- *Event Name*: event name
- *Type*: event type (Analog, Digital (Simple) or Digital (Compound))
- *Source*: information about the stimuli selected for the event
- *Target*: information about the target of the event
- *Raw OUT Value*: event output value, monitored in real time

The events list can be deployed both in DESIGN and DEPLOY modes, but editing functions, new events creation, events deletion etc. are enabled in DESIGN mode only.

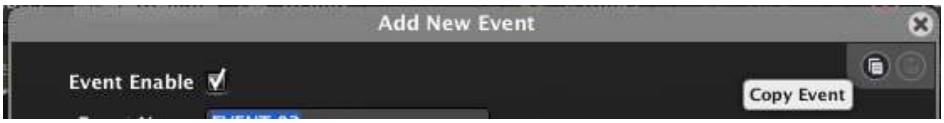
Right-clicking the list displays the following context menu:

- *Add New*: to add a new event to the list
- *Edit:* to edit an existing event (the one currently selected in the list)
- *Remove*: to delete the selected event
- *Rename*: to rename the selected event
- *Edit Comments...*: to edit the comments text field for the selected event
- *Move Up:* the selected event moves up one position in the list
- *Move Down:* the selected event moves down one position in the list

Adding a new event opens the following configuration window which lets you assign a name to the new event and define its type (ANALOG/DIGITAL (SIMPLE)/DIGITAL (COMPOUND)/DIGITALDELAY/TIMER SCHEDULER):

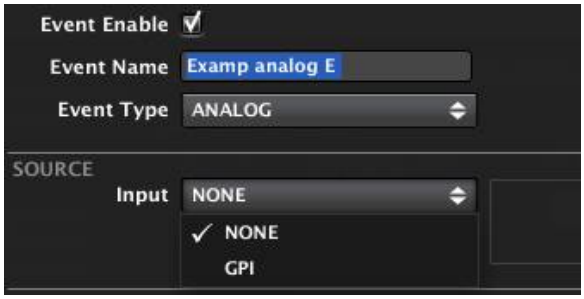


Note: to add a new event or to edit an existing one, you can perform copy and paste operations between a source event and a destination event, using the icons located at the top right corner of the edit window:

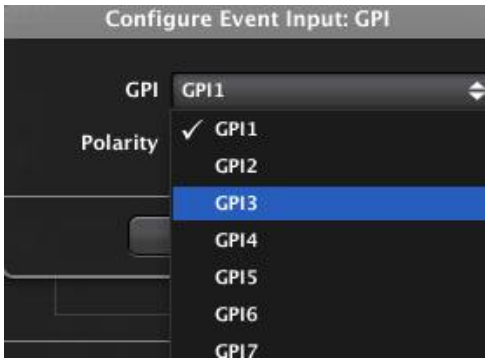


7.12.1. Analog events

If you select the ANALOG type for the new event, you must choose the stimulus associated with this *trigger* using the SOURCE selector:



An analog event can be triggered by a GPI port. You need to indicate the GPI port the external device is connected to for operating as a stimulus (potentiometer, external DC power supply, etc.):



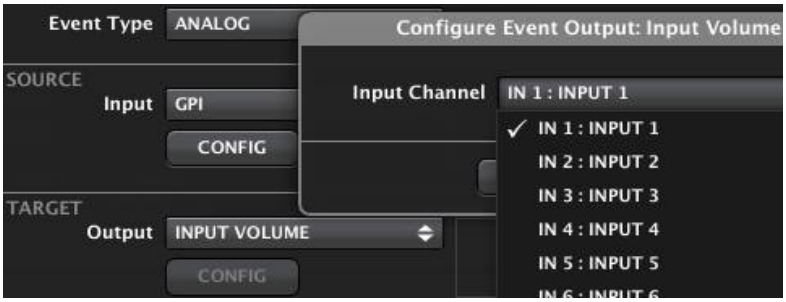
After that, you can define whether the GPI signal will be directly interpreted (0 VDC is considered as the minimum and 10 VDC as the maximum) or inverted (the opposite of the previous case). This setting allows a potentiometer to set a maximum volume in the fully CW position and a minimum volume in the fully CCW position, or vice versa.

Another possible trigger source for this type of event is a virtual control from an UCP control panel (*see section:* ***8. User Control Panels (U.C.P.)***)

The next step is to define the event target with the TARGET selector:

Possible targets are:

- *INTERNAL*: the event output is "internal", so it may be used as input or stimulus for another event to concatenate them
- *INPUT VOLUME*: volume control of an input to be selected:

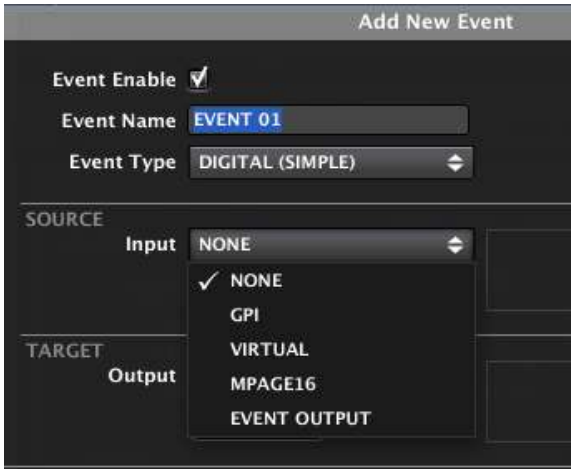


- *OUTPUT VOLUME*: volume control of an output to be selected
- *MATRIX VOLUME*: volume control of a particular crossing point of the matrix. In this case you must select the input and output which define the intersection:

Selection of the crossing point between input 6 and output 4

7.12.2. Simple digital events

If you select the DIGITAL (SIMPLE) type for the new event, you must choose the stimulus associated with this *trigger* using the SOURCE selector:



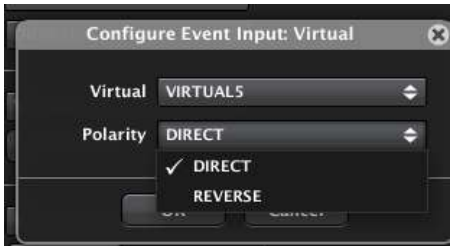
A simple digital event consists of a single stimulus, which may be a GPI port input, a virtual control from an UCP control panel (*see section:* ***8. User Control Panels (U.C.P.)***), a programmable key of MPAGE16 station (F1 and F2 keys), PAGE key or PAGE function activated for a zone 1 to 16 (ie selected zone + PAGE key pressed) or the output of another event previously created, thus concatenating two events.

If GPI is selected, you need to specify the GPI port and the DIRECT/REVERSE polarity:

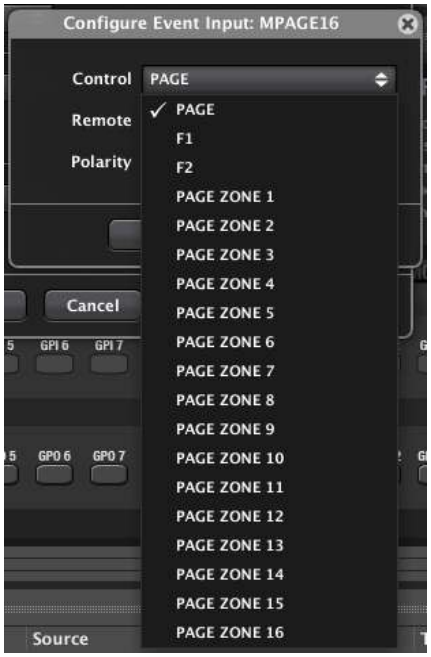
- DIRECT: for rising edge-triggering, from 0VDC to 10VDC
- REVERSE: for falling edge-triggering, from 10VDC to 0VDC

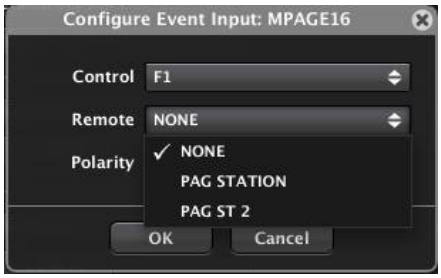
With this setting, a switch can for example toggle a MUTE control when pressed (contact closed) or vice versa.

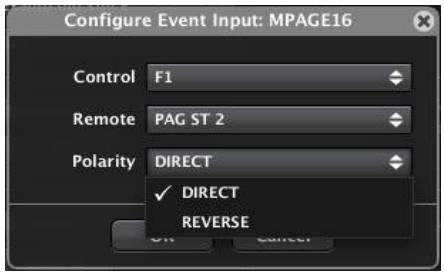
If an UCP virtual control is selected as stimulus, we need to specify which one among the 16 that are available and how the stimulus is interpreted, DIRECT / REVERSE (when you press or release), as in the previous case:



If MPAGE16 is selected, you need to specify the MPAGE16 button in question (among those previously included in the Project), and the DIRECT/REVERSE polarity (when you press or release) as above.





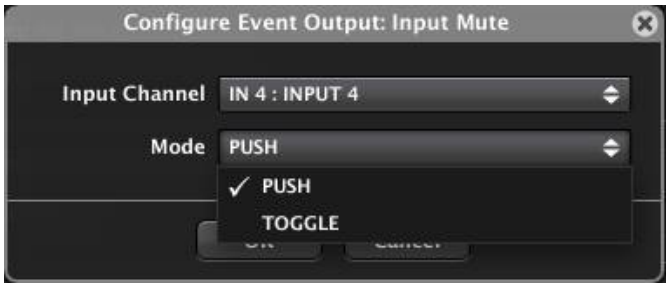


If EVENT OUTPUT is selected, you need to specify the event, and the DIRECT/REVERSE polarity as above:

The next step is to define the event target with the TARGET selector:

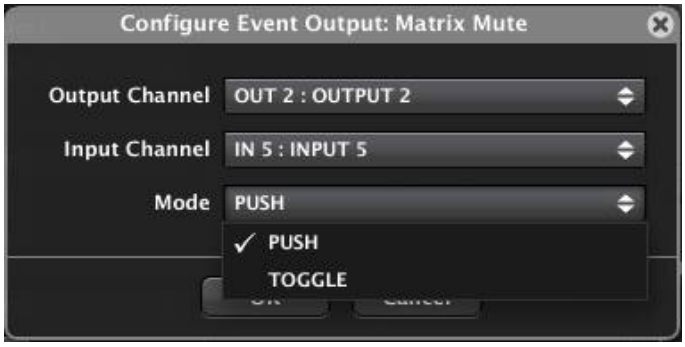
Possible targets are:

- *INTERNAL*: the event output is "internal", so it may be used as input or stimulus for another event to concatenate them
- *INPUT MUTE*: to MUTE an input; you need to select this input and its behaviour mode:
  - *PUSH*: "unlatch" mode; MUTE control follows the stimulus (for example, MUTE ON as long as the switch is pressed)
  - *TOGGLE*: "latch" mode; successive presses toggle the MUTE on/off



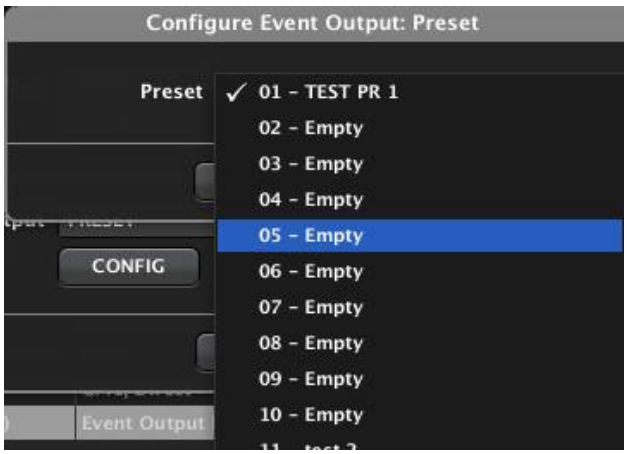
- *OUTPUT MUTE*: to MUTE an output; you need to select this output and its behaviour mode:
  - *PUSH*: "unlatch" mode; MUTE control follows the stimulus (for example, MUTE ON as long as the switch is pressed)
  - *TOGGLE*: "latch" mode; successive presses toggle the MUTE on/off

- *MATRIX MUTE*: to MUTE a matrix crossing point; you need to select this crossing point and its behaviour mode:
    - *PUSH*: "unlatch" mode; MUTE control follows the stimulus (for example, MUTE ON as long as the switch is pressed)
    - *TOGGLE*: "latch" mode; successive presses toggle the MUTE on/off



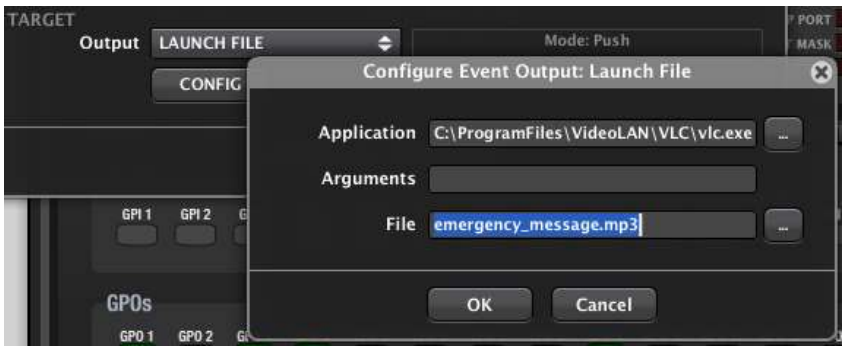
- *GPO*: to enable/disable a GPO port of the MIMO88 unit; you need to select this port and its behaviour mode:
    - *PUSH*: "unlatch" mode; the GPO follows the stimulus (for example, GPO ON as long as the switch is pressed)
    - *TOGGLE*: "latch" mode; successive presses toggle the GPO on/off

- *PRESET*: *Preset* recall from the MIMO88 memory by selection in the list of available *Presets*:



Note: It is important to understand that **a *Preset* is restored only when there is a rising edge as a stimulus**. In the case of a simple digital event, if it is designed to recall a Preset, you must be sure that there will be a rising edge (0 to 1) as a stimulus, whatever the input type (GPI, UCP button)

- *LAUNCH FILE*: allows you to call any Windows application installed on the computer EclerNet Manager is running on:

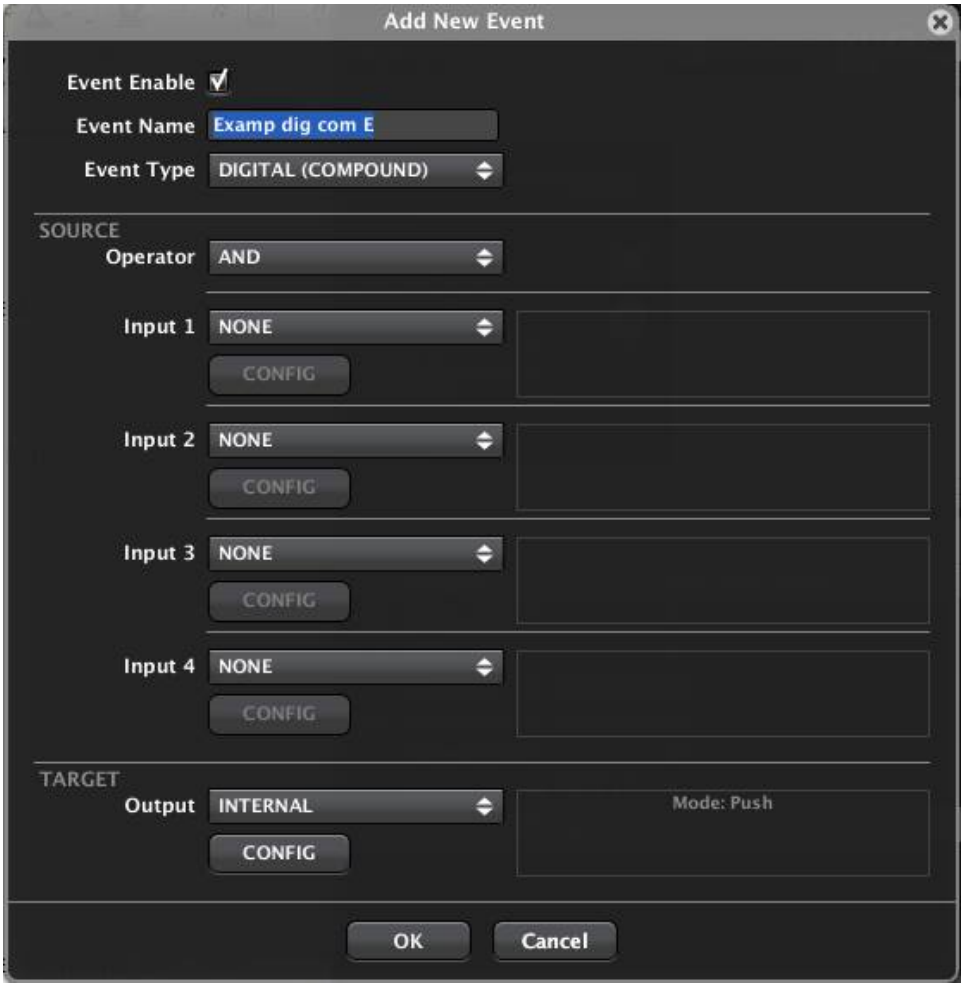


In the above example the output of the event is the playback of the audio file named *emergency_message.mp3* by VLC player. Similarly, an event of this type can launch any other application installed on your computer (audio or video playback from a playlist or individual file, Powerpoint presentation, video call software, etc.).

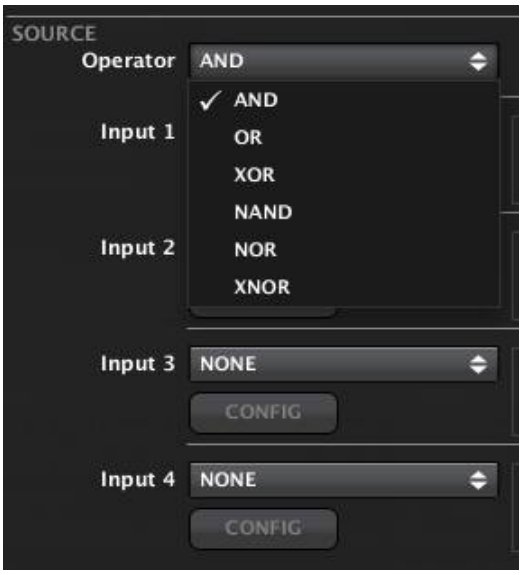
- *SEND E-MAIL:* allows you to send an email to the addresses defined in the *Edit->Project Settings* menu with the text entered in the *Text* field:

7.12.3. Compound digital events

If you select the DIGITAL (COMPOUND) type, the configuration window looks like this:



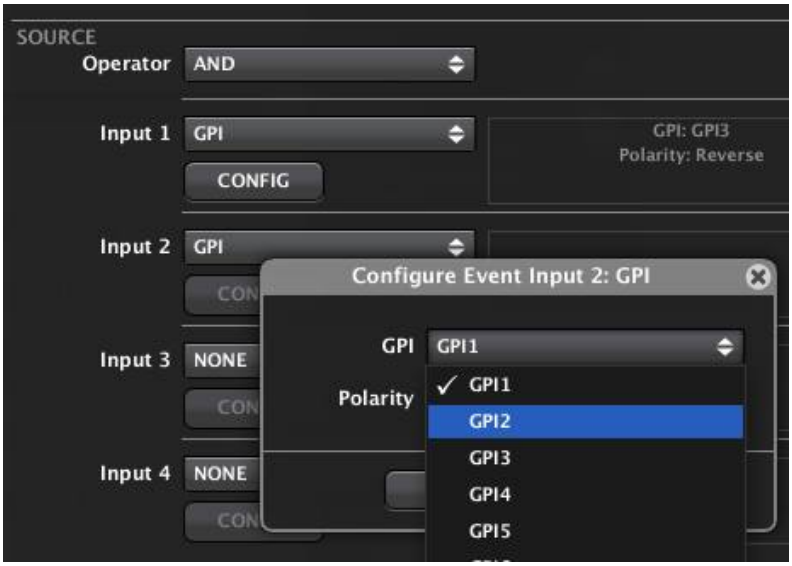
Within the configuration of stimuli for the event input, the first option to select is the Boolean operator that will be used to operate on the target output:



By combining two or more digital input stimuli (values 0 or 1), and depending on the applied logical operator, we obtain the following result:

- *AND*: all stimuli should be = 1 to obtain 1 at the output (event triggering)
- *OR*: one or more of the stimuli must be = 1 to obtain 1 at the output
- *OR* (exclusive OR): only one of the stimuli must be = 1 to obtain 1 at the output
- *NAND*: (negative AND): you get a 1 at the output when at least one of the input stimuli is = 0 (a 0 is obtained when all stimuli are = 1)
- *NOR* (negative OR): inverse of an OR gate. All stimuli should be = 0 to obtain 1 at the output
- *XNOR*: (negative exclusive OR): you get a 1 at the output when all stimuli are = 1 or all are = 0

Then you must define each input stimuli up to a maximum of 4:



For each of them it's necessary to select the input (GPI, EVENT OUTPUT...) and the DIRECT/REVERSE polarity (0 VDC for 0 and 10 VDC for 1, or vice versa), exactly as for simple digital events. Using EVENT OUTPUT as input for one of the stimuli allows you to concatenate stimuli and thus to exceed the limit of 4 stimuli combined with a logical operator to operate on the same target.

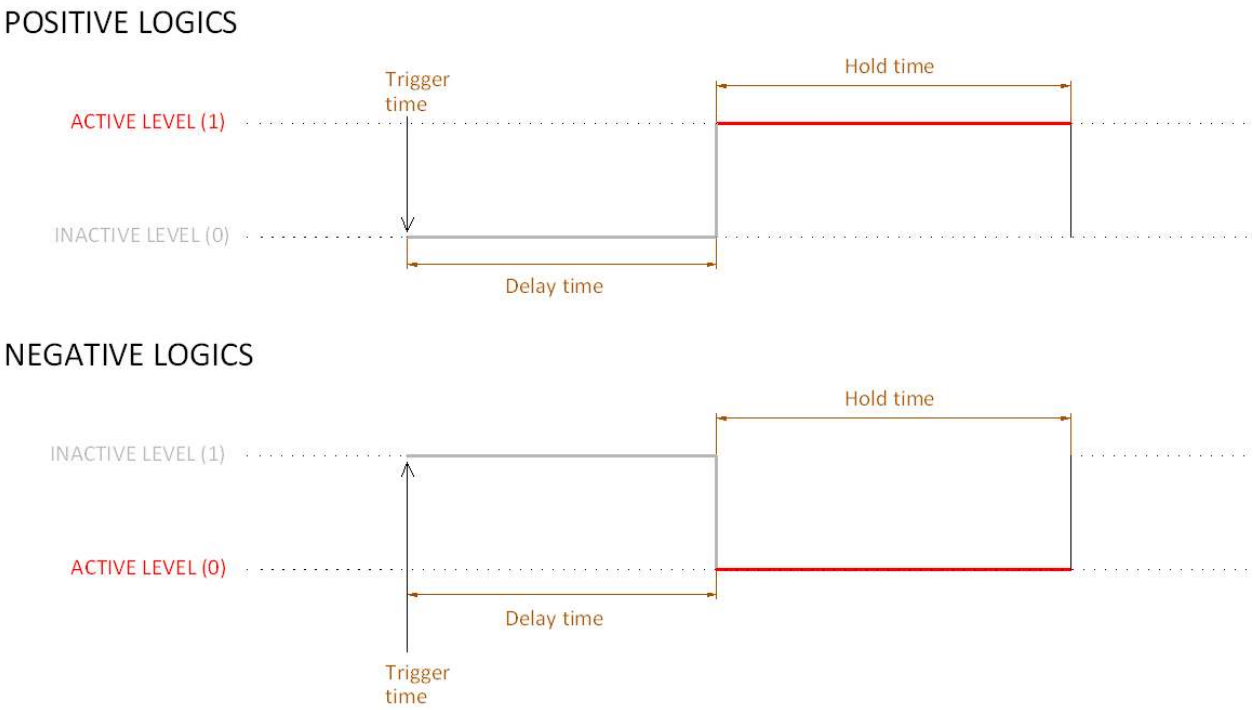
***Note**: to select the F1 or F2 key of a MPAGE16 station as input for a digital event, you must first create a simple event with this key as input and link its output to one of the inputs of the compound digital event. This is because F1 and F2 keys can't be assigned to a TOGGLE or PUSH operation until they are processed by a simple digital event.*

Finally, you need to define what will be the event output or target and the TOGGLE or PUSH behaviour, also exactly as for a simple digital event:

7.12.4. Delayed digital events (DIGITAL DELAY)

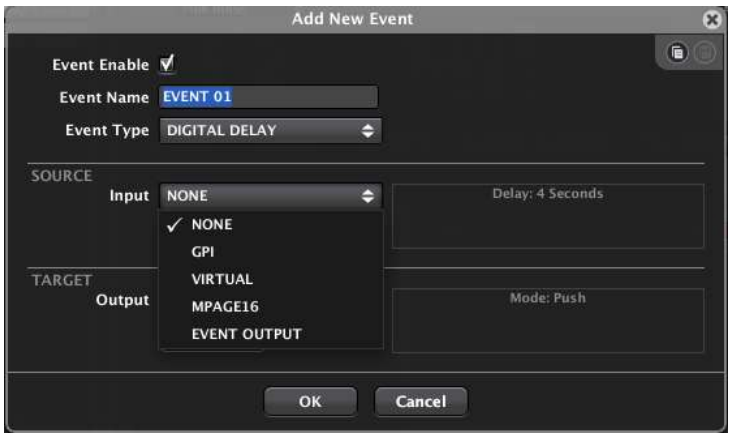
Such events can set a delay time between the stimulus detection and the destination triggering or event output, as well as a holding time of this activated status for the output (for example: 10 seconds after detecting an external contact closure connected to a GPI, a relay (GPO) status changes for 90 seconds, then returns to its previous state).

From the moment the input stimulus is detected (trigger time), depending on whether the event is set to positive logics (high level or “1” is considered as active level) or negative logics (low level or “0” is considered as active level), the timing of these events is shown in the graph below:

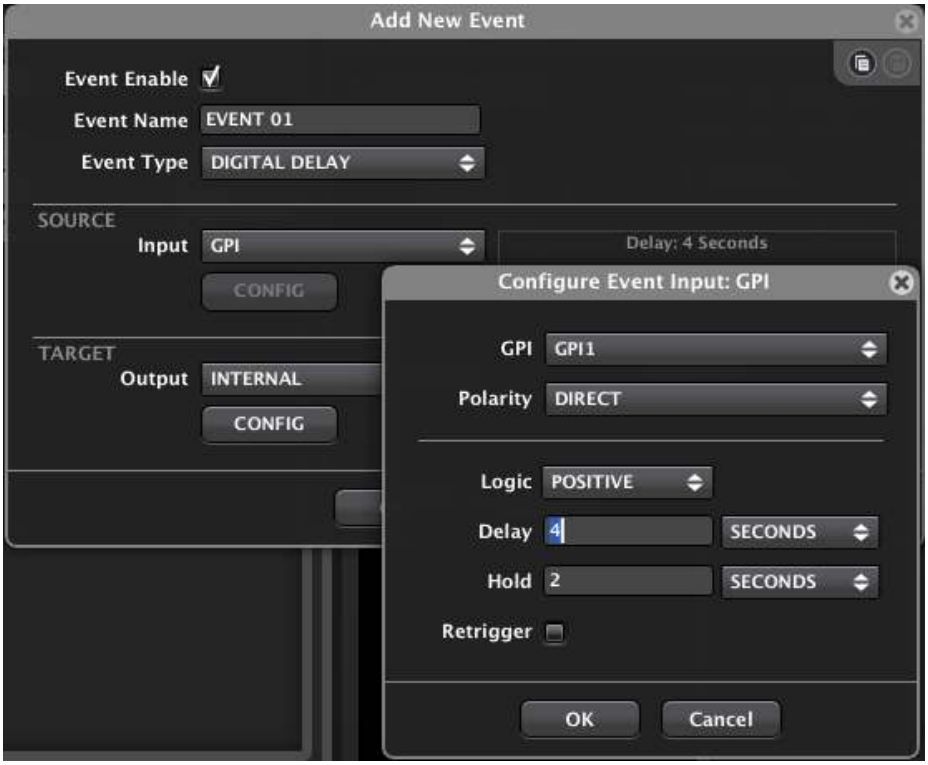


The Delay time is the period from stimulus detection to event triggering during which the inactive state is maintained (0 for positive logics, 1 for negative logics).
Hold time is the period during which the event keeps the active state (1 for positive logics, 0 for negative logics).

After selecting the DIGITAL DELAY type of event the configuration window looks like this:



After selecting the input type (options are the same as for a simple digital event), you must configure the way it will behave:



- Select the trigger input (GPI, virtual control, MPAGE16 station key or event output) you want from the dropdown list.
- POLARITY: select the detection polarity for trigger or input stimulus, DIRECT/REVERSE:
    - DIRECT: for rising edge-triggering: from 0VDC to 10VDC for a GPI, when pressing an UCP key, etc.
    - INVERSO: for falling edge-triggering: from 10VDC to 0VDC for a GPI, when releasing an UCP key, etc.

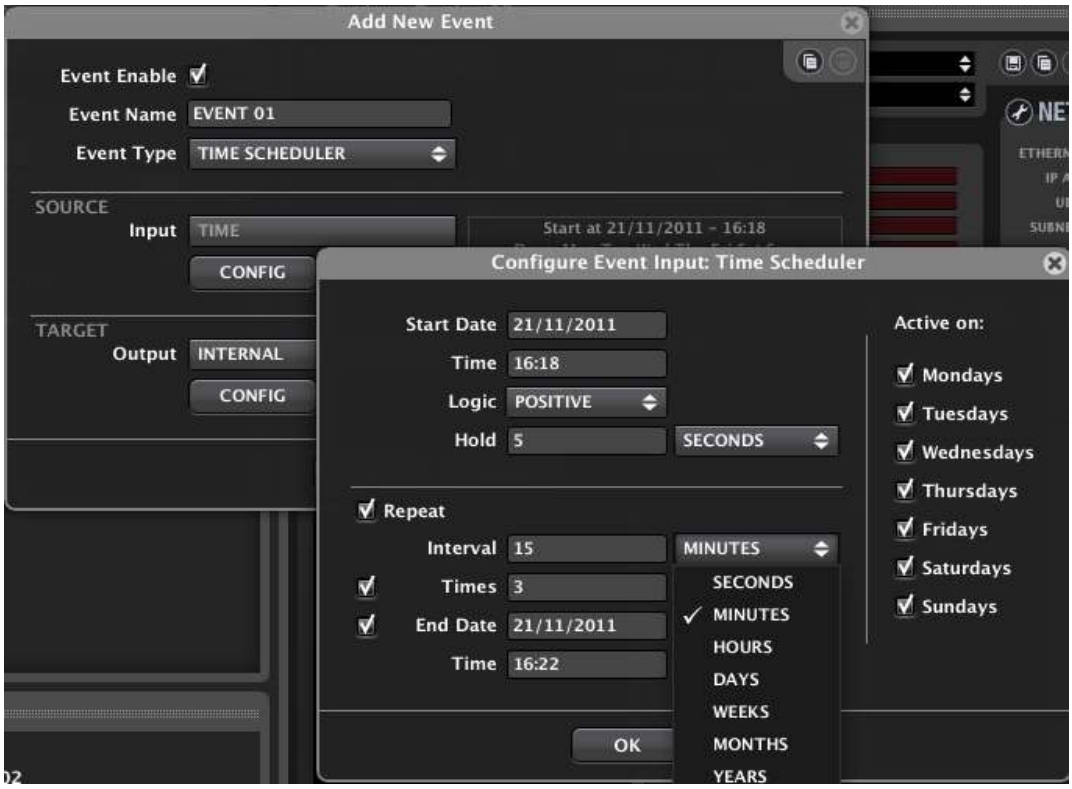
      Note: For example, a Preset recall has to be done with a rising edge (0 to 1), so it is recommended to use a positive logic type.

- LOGIC:
    - the active state of the event is considered a “1” or high level (positive logic)
    - the active state of the event is considered a “0” or low level (negative logic)
- DELAY: period of time between the trigger detection and the switch to the active state of the event
- HOLD: time during which the event is held in its active state
- RETRIGGER: check box to validate the event re-triggering, which provides the following options:
    - checked: once an event trigger is detected, if a second stimulus of the same trigger is detected before the end of the hold time, process is reset, starting over the time count of delay time + hold time.
    - unchecked: any trigger stimulus received after the first one will be ignored if the hold time period is not elapsed

Finally, we must define what will be the output or destination of the event and its PUSH or TOGGLE behavior, here again exactly as we proceed in the case of a simple digital event:

7.12.5. Calendar-based events (TIME SCHEDULER)

This type of event receives its input stimulus according to a calendar with date and time of onset, duration, days of the week it must be activated or not, repetition by time interval or number of repetitions and end date. The MIMO88 has an internal clock that allows the management of such events, even if not connected to a computer and synchronized with EclerNet Manager.
When selecting an event of this type to create or edit it, the following configuration window opens:



- START DATE / TIME: date and time the event activation period starts from
- ACTIVE ON: days of the week for which the event triggering is enabled or not
- LOGIC:
    - the active state of the event is considered a “1” or high level (positive logic)
    - the active state of the event is considered a “0” or low level (negative logic)
- HOLD: time during which the event is held in its active state
- REPEAT: if the check box is checked, the event may be triggered several times from the start date and time:
    - INTERVAL: time interval between a trigger and the next one
    - TIMES: number of repetitions of the trigger
    - END DATE / TIME: end date of the period enabled for repetitions

Note: if **TIMES** and **END DATE / TIME** check boxes are checked, the event triggering will occur the number of times that meets the more restrictive condition of the two options.

Finally, we must define what will be the output or destination of the event and its PUSH or TOGGLE behavior, here again exactly as we proceed in the case of a simple digital event:

8. EclerNet COMPATIBLE DEVICES, part III: MIMO88 CONFERENCE digital matrix

8.1. MIMO88 CONFERENCE introduction

The new MIMO88 CONFERENCE has been specially designed for conferencing applications and generally for all applications that require an automatic mixing of microphone signals and / or feedback cancellation (audio feedback or Larsen effect).

The differences between the "CONFERENCE" version (hereinafter MIMO88CONF) and the standard version of the MIMO88 digital matrix are:

- Identical hardware for both versions
- Different firmware between standard version and conference version

Consequently, any MIMO88 hardware can be upgraded with either firmware to convert it as a standard MIMO88 version or a MIMO88CONF. The process is simple and quick, and can be performed as many times as necessary, so that by having MIMO88 hardware units it's possible to provide customers and users any version of MIMO88, depending on the intended application.

MIMO88CONF basically shares many of the standard MIMO88 functions:

- Inputs and outputs processing (levels, EQ, noise gate, etc..), with slight differences from the standard version
- Management of the routing matrix (state and levels of the crossing points), with slight differences from the standard version
- Management of priority signals (evacuation, emergency)
- Management of GPI and GPO control ports
- Management of digital and analogue remote controls (WPTOUCH, etc.)
- Presets management
- Events management
- Individual configurations (8 in, 8 out) or as a MASTER/SLAVE couple (16 in, 16 out)
- Programming and control using EclerNet Manager application software
- Remote control via TP-NET, Ethernet or RS-232 protocol (Third-Party Protocol)
- Remote control via UCP (User Control Panels)

And presents some differences compared to a standard MIMO88:

- INPUTS Section:
  - Each input channel includes the Frequency Shifter function, independently enabled (also included in the new versions of the standard MIMO88)
  - Delay is removed from inputs, it is available on outputs only

- OUTPUTS Section: EQ including 4 parametric filters, without crossovers
- MATRIX Section: 4 outputs with totally independent routing (1 to 4) + 4 outputs (5 to 8) that can receive the processed signal from one of the first 4 outputs, while independently maintaining volume controls and DELAY
- DUCKERS Section: PAGER modules are removed and a DUCKER module is enabled for the management of emergency / evacuation signals
- AUTOMIXER Section: new section for the configuration of the automatic mixing
- FEEDBACK KILLER Section: new section for the configuration of the 2 available modules dedicated to feedback cancellation, each one of them including 8 notch filters with automatic adjustment
- REMOTES Section: MPAGE16 digital remote control type is deleted, as PAGER modules are not available in this version

The reason for these differences lies in the need to accommodate the new high-demand features DSP code in the device processors. It was necessary to optimize the resulting code in which certain features of the standard version have been set aside for the benefit of the MIMO88CONF new features.

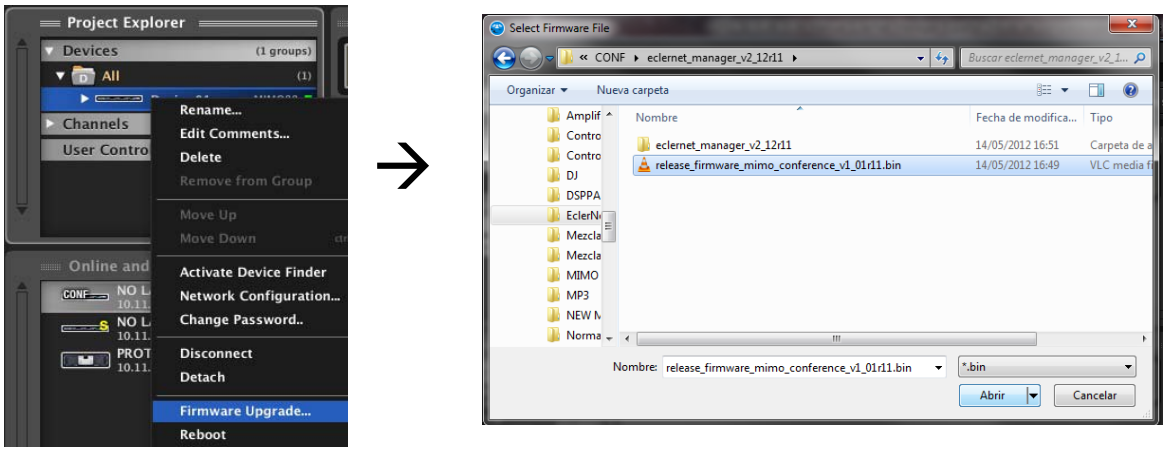
Both AUTOMIXER and FEEDBACK KILLER settings can be stored and retrieved using presets. In this way, different presets can store different configurations of these two new sections, in order to instantly recall those presets.

8.2. MIMO88 CONFERENCE Firmware Update

Starting from a standard MIMO88 hardware unit, the procedure for updating your firmware and convert the unit into a MIMO88CONF is as follows:

1. Connect the MIMO88 unit and the networked computer running EclerNet Manager and modify your network settings to have full connectivity, as detailed in section 7.4 of this manual (*Network Configuration*).
2. Add the MIMO88 device to the current project (drag and drop from the folder "Online and Unused Devices" to the folder "Devices -> All").

3. Once the device is added to the project and "online" or connected (right mouse button -> Connect -> Green fixed icon to its right), access the dialogue box that allows you to load the firmware file from a device (with .bin extension) and transfer it to the device in question.



4. A progress bar appears on the screen during the device firmware update.

5. And then a message of completion of the process.

6. After this, the device automatically performs a full boot cycle (a "reset" or restart), appearing in the EclerNet Manager application under its new identity, MIMO88CONF.

From this time the new MIMO88CONF is ready to be used as the other EclerNet Manager compatible devices: insertion in a project, modification of its detailed configuration, remote management from UCP panels and via TP-NET protocol, etc.

The following paragraphs describe the general operation of the MIMO88CONF. Given that many of the features available in the MIMO88CONF are common to the ones in the standard MIMO88, the next sections will especially detail the differences with the standard version, as well as how to operate the new features included in the MIMO88CONF version: FREQUENCY SHIFTER, AUTOMIXER and FEEDBACK KILLER. It is highly recommended to also refer to chapter 7 (**EclerNet COMPATIBLE DEVICES, part II: MIMO88 digital matrix**) for in-depth understanding of processing and control features and capabilities that are common to MIMO88 and MIMO88CONF.

8.3. INPUTS Section and FREQUENCY SHIFTER function

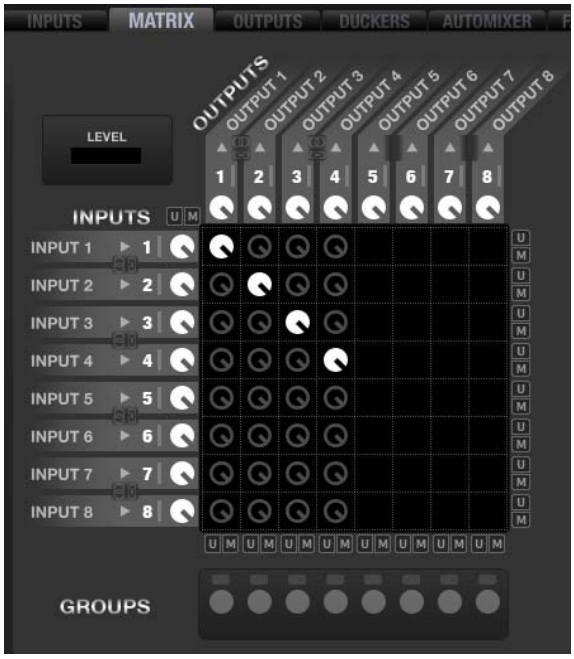
The aspect of the INPUTS section of the MIMO88CONF is as follows:

Comparing it with the same section of the MIMO88 standard version, there is no DELAY adjustment for each input, although delay settings are maintained for each output of the unit.

Each input has a new function named FREQUENCY SHIFTER (bottom right corner), an efficient system to reduce the risk of feedback loops (audio feedback or Larsen effect) when a microphone source is near the speaker(s) producing its signal, once amplified. When activated, this function slightly shifts the incoming signal frequency on the affected channel before sending it to the matrix mixer and then to the selected output. The shift is so slight that it is barely noticeable to the listener, especially when it occurs in the frequency range of the human voice. A few cycles (Hz) displacement is enough to greatly increase the system protection against possible feedbacks.

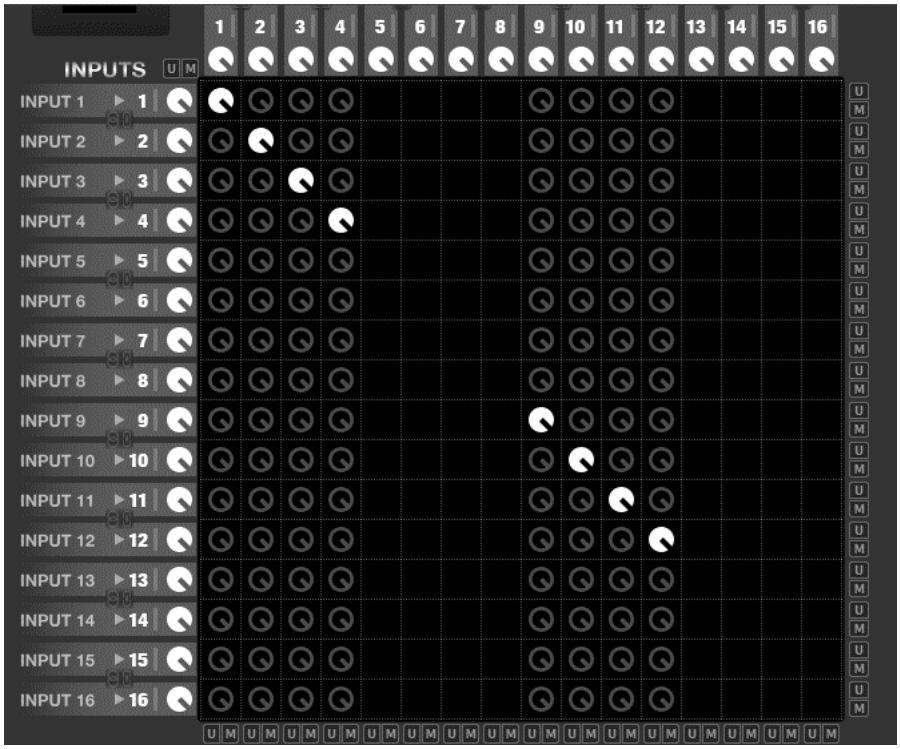
8.4. MATRIX Section

The aspect of the MATRIX section of the MIMO88CONF is as follows:



The image shows that the MIMO88CONF has the ability to process any mix of inputs you may have sent to one of the first 4 outputs on the unit. In other words, it is possible to generate up to 4 independent mixes, using any combination of the 8 available inputs as sound sources.

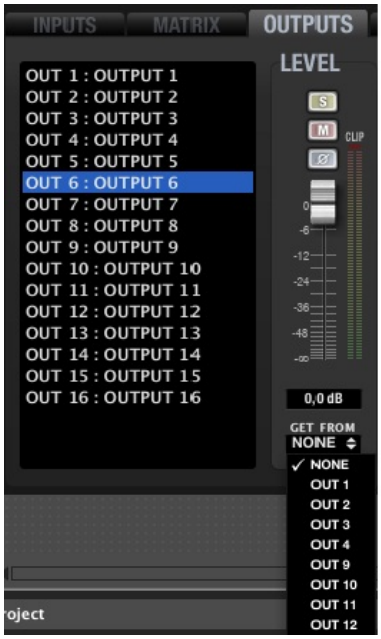
If you use a MASTER/SLAVE couple of MIMO88CONF, the appearance of the matrix would be the following:



In this case it is possible to process up to 8 independent mixes (outputs 1 to 4 and 9 to 12) using any combination of the 16 available inputs as sound sources.

Of course, the linking groups, the matrix management using presets, etc. that are available in the standard version are still available in the CONF version (see chapter 7 for more information about these functions).

Outputs 5 to 8 and 13 to 16 (in the case of a master/slave configuration) can be fed with the signal of one of the available mixes (outputs 1 to 4 and 9 to 12), but with independent level control and DELAY:



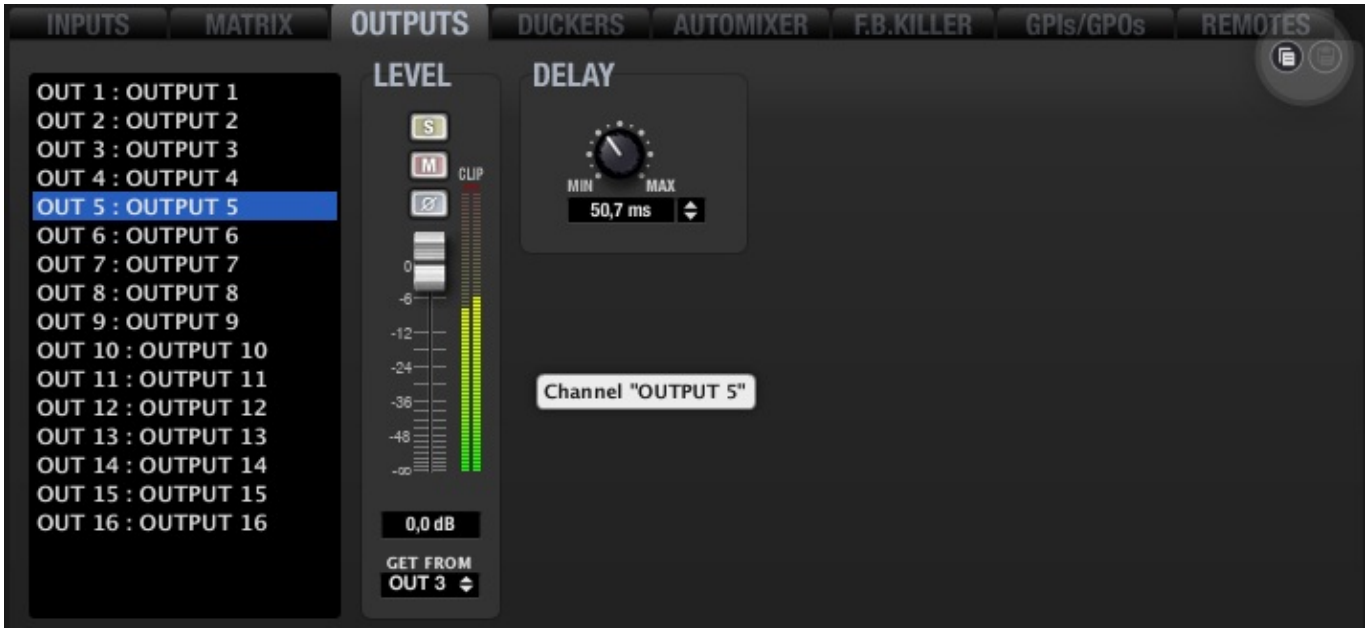
8.5. OUTPUTS Section

The aspect of the OUTPUTS section of the MIMO88CONF for outputs 1 to 4 and 9 to 12 is as follows:

The image shows that the MIMO88CONF outputs only have two differences compared to the standard version (see chapter 7 for more information about these features):

- No crossover filters
- 4-Band parametric EQ (8 in the standard version)

The aspect of the OUTPUTS section of the MIMO88CONF for outputs 5 to 8 and 9 to 16 is as follows:



This image shows the following differences compared to the output groups 1 to 4 and 9 to 12:

- An output signal should be selected in the list (OUT1 to OUT4 and OUT9 to OUT12)
- No processing except the DELAY setting, especially useful when using these outputs to deliver a signal to a sound reinforcement system located at some distance from the main speakers, and to time-align the main speakers and the reinforcement speakers

8.6. DUCKERS Section

The aspect of the DUCKERS section of the MIMO88CONF is as follows:

The differences compared to the standard version are:

- No PAGER modules (so this version is not compatible with the MPAGE16 paging station)
- One single DUCKER module for handling signals with highest priority (emergency or evacuation messages, etc.). The module can act directly on the 4 or 8 outputs with full mixing functionality (1 to 4 / 9 to 12). If one of them is selected as sound source for any of the outputs 5 to 8 or 13 to 16, the DUCKER will also act on the destination output(s).

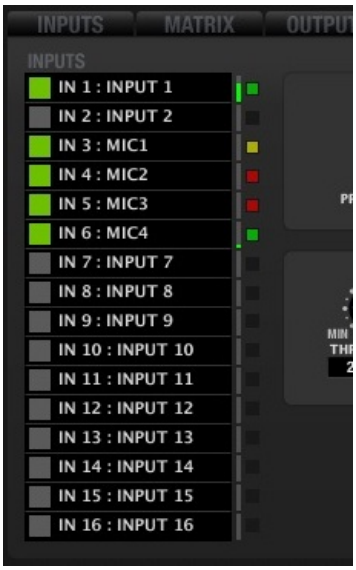
8.7. AUTOMIXER Section

AUTOMIXER is a new section, available only in MIMO88CONF, that allows you to perform automatic mixing of incoming audio signals, while maintaining a control (also automatic) on the total gain of the mix and managing some parameters and priorities between these signals.

The AUTOMIXER processing module uses a very sophisticated algorithm to manage what input signals must be part of the automatic mix and under what conditions, and what signals must remain apart. The AUTOMIXER analyses the audio content on all inputs to identify what should be considered as background noise and what should be considered as a valid signal to trigger the input channel in the auto mix.

A clear and frequent example would be a conference application in a room with multiple microphones assigned to the automatic mixing process as sound sources. The signals simultaneously captured by all the microphones with a less high intensity could be considered as indirect, i.e. coming from a lecturer with the intention to be picked up by his own microphone, but inevitably also captured by the rest of the microphones in the room. In contrast, the signal picked up by the microphone of the speaker itself should logically be of much greater intensity.

The algorithm takes into account a large set of parameters related to the indirect signals to calculate in real time the background noise level of the mix and, from there, allows the signals exceeding some magnitude (set with the THRESHOLD setting) to enter and be part of the automatic mix. Inputs that do not meet the requirements to be considered as part of the automatic mix are attenuated by an amount of decibels set with the DEPTH parameter (in certain applications it is preferable not to completely mute signals excluded from the automatic mix, but to attenuate them to a certain extent).


INPUTS
MATRIX
INPUTS
IN 1 : INPUT 1
IN 2 : INPUT 2
IN 3 : MIC1
IN 4 : MIC2
IN 5 : MIC3
IN 6 : MIC4
IN 7 : INPUT 7
IN 8 : INPUT 8
IN 9 : INPUT 9
IN 10 : INPUT 10
IN 11 : INPUT 11
IN 12 : INPUT 12
IN 13 : INPUT 13
IN 14 : INPUT 14
IN 15 : INPUT 15
IN 16 : INPUT 16

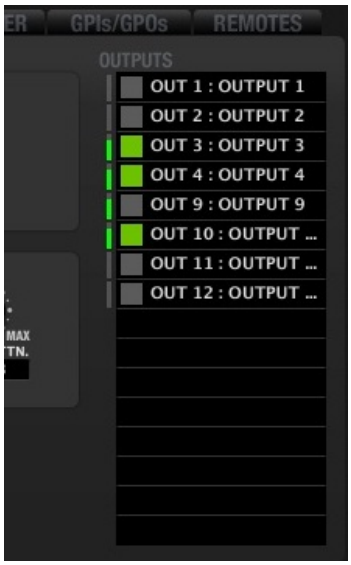
To the left of the screen you will find a list of all unit inputs, where you can select inputs you want to be a part of the automatic mix (left button in green for the selected inputs). The multicolour indicator to the right of each input shows its status at a given time:

- Red: the input level is below the threshold of the noise gate that allows the input of the signals in the automix (noise gate closed). Inputs 4 and 5 in this example.
- Yellow: the input level has exceeded the noise gate threshold (opened gate), but the input is not currently included in the automatic mix, according to criteria established for the automatic mixing algorithm. Input 3 in this example.
- Green: the input level has exceeded the noise gate threshold (opened gate) and the input is currently included in the automatic mix. Inputs 1 and 6 in this example.

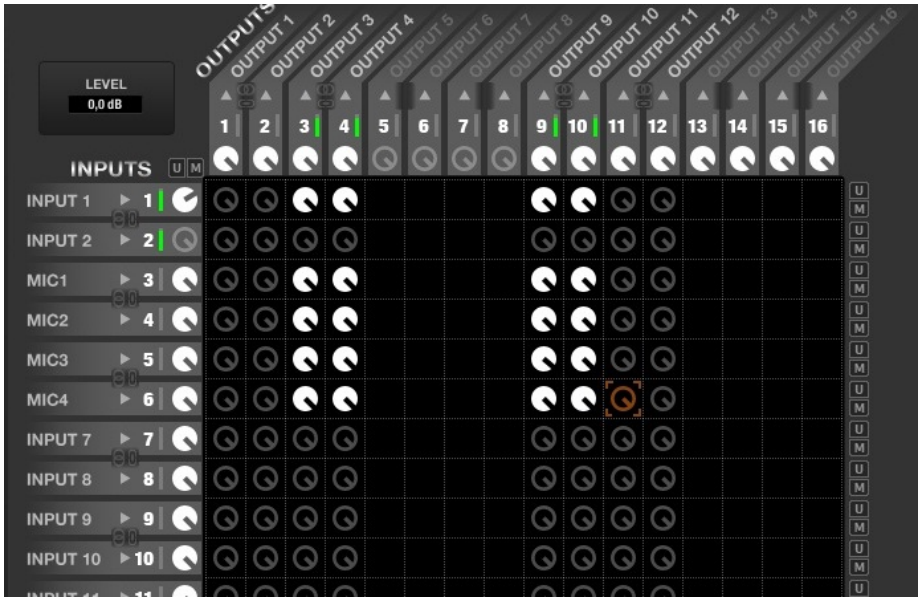
The small green level meters located to the right of the list indicate the activity of the signal present on each input.

To the right of the screen you will find another list, including all the device outputs, where you can select the outputs the automatic mix will be affected to. In this example, the automatic mix done in the AUTOMIXER module is routed to outputs 3, 4 and 10.

The small green level meters located to the left of the list indicate the activity of the signal present on each output.



The inputs assigned to automatic mixing in the AUTOMIXER module must first be properly assigned in the MATRIX section, by adjusting the MUTE and level controls of its crossing points to correctly route them toward the desired outputs.



The picture above shows how inputs 1, 3, 4, 5 and 6 are routed toward outputs 3, 4, 9 and 10. Thus it would be possible that any selection of these inputs and outputs in the AUTOMIXER module could result in an automatic mixture according to the settings made in this module.

8.7.1. AUTOMIXER. NOMA or EXCLUSIVE automix modes

The AUTOMIXER has two operating modes:

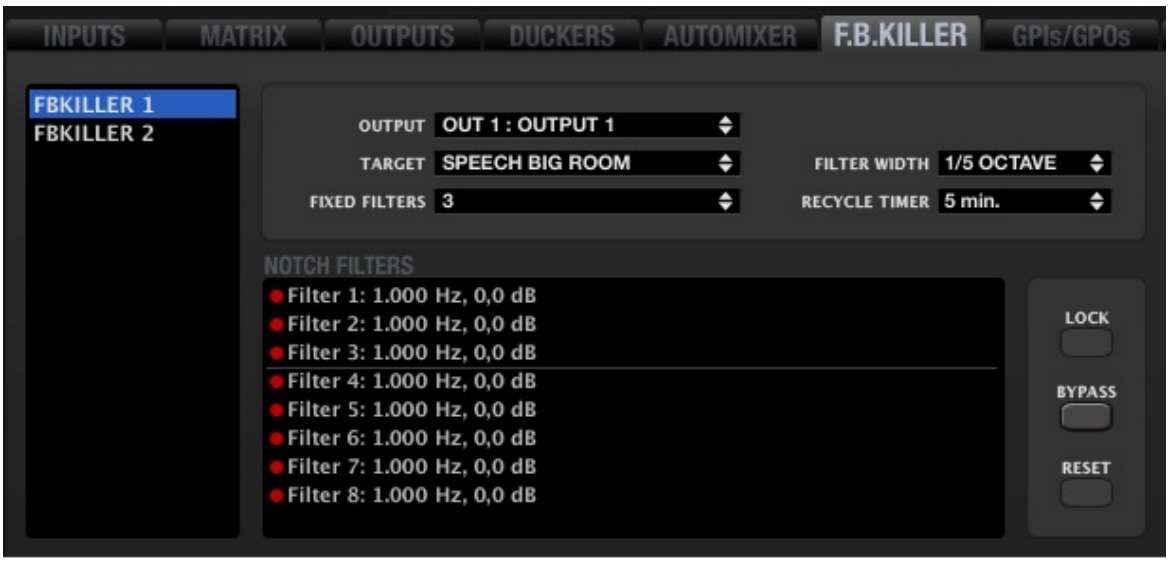
- NOMA: “Number of Open Microphones Attenuated”. In this mode, the automatic mixing algorithm allows a fixed number of input signals (usually picked up by microphones) to be simultaneously part of the mix, reducing or increasing their total gain when the number of microphones included in the mix increases or decreases (more active signals in the mixture, less total gain).
- EXCLUSIVE: in this mode only a single microphone is part of the mixer channel at a given moment, once the algorithm considers that it complies with its requirements. Another microphone can be used when the first one has released the channel.

The user controls of the AUTOMIXER section are the following:

- MODE: NOMA or EXCLUSIVE mode selection
- MAX. NOM (NOMA mode only): maximum number of signals that may simultaneously be part of the automatic mixing. Regardless of the number of inputs that have been selected in the INPUTS list (to the left of the AUTOMIXER window) as candidates to be automatically mixed, the MAX. NOM parameter sets how many of them can be mixed at a given moment with the automix algorithm. For example, if the application consists of 8 lecturer microphones, but MAX. NOM is set to a value of 4, only a maximum of 4 of these 8 microphones (from 0 to 4, in fact) are actually mixed automatically, although the 8 microphones capture signals above a certain intensity, the algorithm deciding at all times which of the 8 eligible inputs will join the mixing bus.
- LAST ON: when this option is enabled, at least the last signal to join the mixing bus will permanently remain in it, even when it no longer meets the input criteria, being composed only by weak signals or background noise. In this mode, the mixing bus will never remain fully silenced, thus avoiding the uncomfortable effect of audio "disconnection" of the system during the intervals in which there are no valid signals for the automatic mixing process.
- PRIORITY INPUT: if desired, define a device input that will have the highest "chairman" priority. When this input exceeds the noise gate threshold, it will become part of the mixing bus, inhibiting the other signals. The priority signal is the one that usually comes from the microphone of a moderator or chairman during conferences, debates, etc.
- THRESHOLD: input level of the signals in the automix bus, based on the internal threshold that the internal mixing algorithm automatically and dynamically calculates. The higher the setting, the greater the difficulty for the input signals to be incorporated into the mixing bus (a higher level will be required).
- DEPTH: attenuation level applied to the signals that are outside of the bus at a given moment
- HOLD: holding time of the signals within the mix bus, once they have entered into it, and after leaving to meet again with the criteria of admission
- NOM ATTN.: attenuation applied to the total gain of the automatic mix bus whenever the number of signals contained therein is doubled

8.8. FEEDBACK KILLER Section

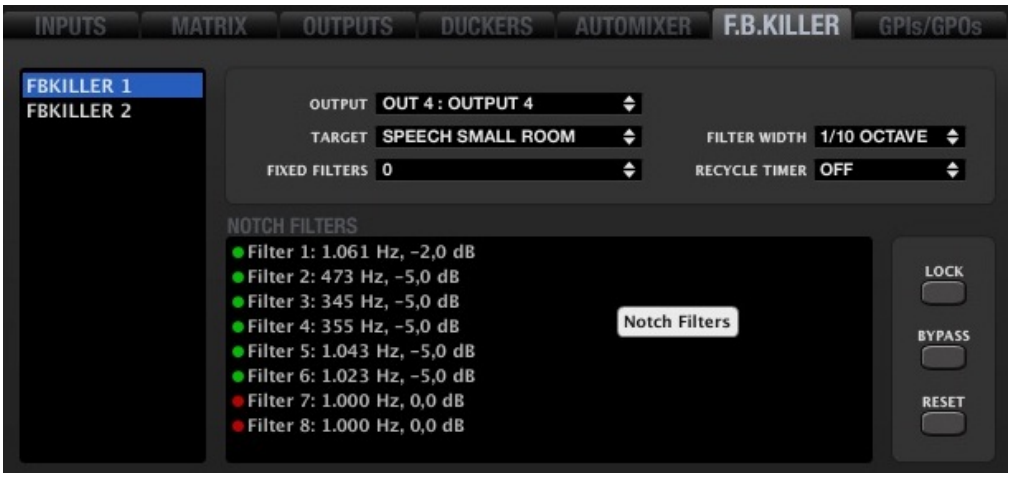
FEEDBACK KILLER is a new section, available only in MIMO88CONF. The new section includes "notch" type filters with automatic adjustment, whose mission is to reduce the risk of audio feedbacks (or Larsen effect).



The FEEDBACK KILLER section consists of 2 banks, with 8 automatic filters in each one of them. The 2 banks are independent in terms of settings, operating mode and assigned output.

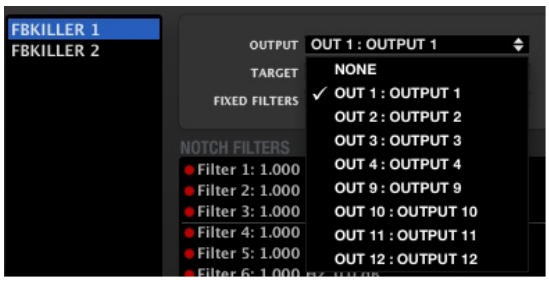
According to the settings, the FEEDBACK KILLER algorithm continuously analyses the input-output loop assigned to each bank, detecting in real-time frequencies prone to feedback then automatically assigning notch filters to these frequencies. Each notch filter is set (centre frequency and attenuation) to reduce the level of a band of frequencies in order to avoid a feedback effect.

The image shows the bank 1 with 6 of its 8 filters assigned to frequencies that the algorithm has detected as prone to feedback:

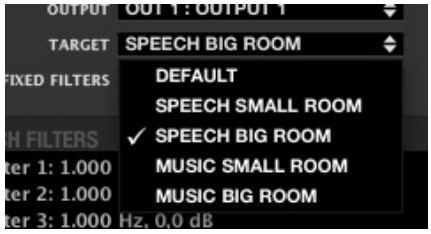


To the left of the window is the selection list for one of the two banks (FBKILLER 1 and FBKILLER 2). Clicking on one of them allows you to adjust their settings:

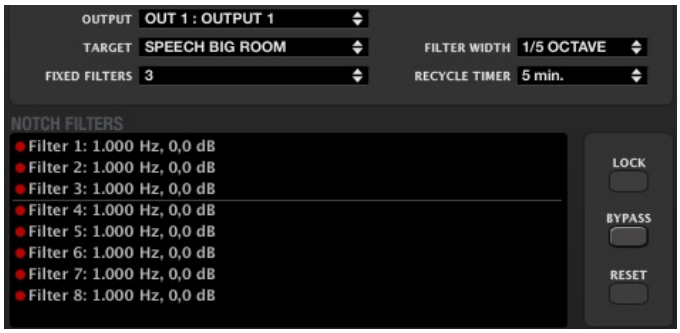
- OUTPUT: the system output the filter bank is applied to in order to cancel or minimize its potential feedbacks (outputs 1 to 4 and also 9 to 12 in the case of a MASTER-SLAVE MIMO88CONF)



- TARGET: allows you to select among 4 preset application profiles, each one of them with the algorithm optimized for the application. Each of these profiles adjusts algorithm internal parameters such as the feedback detection sensitivity and the maximum attenuation applied by the filters. It is important to correctly set this parameter taking into account the application characteristics (music or speech) and the room type where to work (large or small), given that its own reflections and modes differently affect the risk of feedback in all the cases considered as profiles for the TARGET parameter. A conference application using a MUSIC profile will surely give worst results than if you employ a SPEECH profile, and vice versa.

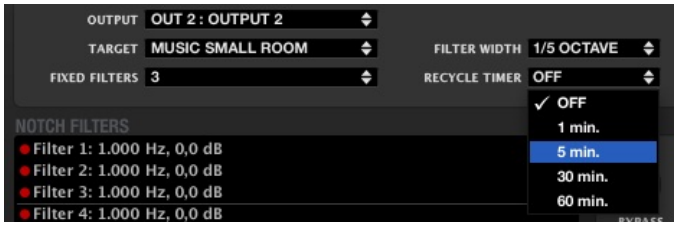


- FIXED FILTERS (from 0 to 8, per bank): determines the number of filters that, once set, remain fixed over time (static) until you change the MIMO88CONF setting that affects them (recalling a preset with other settings, loading a new project, rebooting the computer, etc.). A horizontal line visually separates fixed filters (the first three in this picture) from dynamic filters (the following five in this picture). Dynamic filters can be reset over time if the algorithm detects that it is necessary (microphones moved in the room, changes in the acoustic conditions, etc.).



- FILTER WIDTH (1/5 or 1/10 Octave): determines the bandwidth of each one of the notch filters of the bank, or the frequency range that will be affected (attenuated) by each filter, using its centre frequency, automatically detected, as the centre of this range

- RECYCLE TIMER: determines the minimum necessary time between the setting of each dynamic filter and its releasing for a new setting on another frequency of potential feedback, when the algorithm detected this need



- LOCK: locks the status of already set filters, not allowing more static filters setting (if any) nor dynamic filters setting or resetting

- BYPASS: when activated, temporarily disables the FEEDBACK KILLER function, while keeping the adjustments and filters set in memory. When deactivated, re-enables the function, recovering the previous settings

- RESET: totally resets the 2 banks of filters, now available again for setting

9. USER CONTROL PANELS (U.C.P.)

9.1. Introduction

From EclerNet Manager application itself, you can create remote control panels for the system (hereinafter **UCP**s) to manage one or more MIMO88, NZA or NPA units in a facility. Each panel can consist of one or more pages that include graphics, text, volume controls, buttons, VU meters, LED indicators, and so on. In this way each remote user may have his own control panel(s) custom tailored to his needs and privileges, and in one system, users with a very simple control panel can coexist with others, more complex and having higher levels of authorization.

A panel can be public (anyone can use it) or associated with one or more user accounts created in the project. In this last case, it requires a user name and a password to remotely operate it.

UCPs are created within an EclerNet project and stored as part of it, within the **User Control Panels** folder in the Project Explorer window:

Once UCPs are created, the computer running the EclerNet Manager application becomes a web server and UCPs can be called and operated remotely by devices that act as web clients. Web clients can be computers or tablets running an Internet browser application (Internet Explorer, Google Chrome, Mozilla Firefox, etc..), Android OS devices (tablets, smartphones) or even Apple devices (iPhone, iPhone, etc..). Any of them can recover and operate UCPs pointing to the web server computer's IP address. If a single computer acts as both a web server and a web client, it's still possible to use the 127.0.0.1 IP address (the loopback standard) to operate UCPs of the project EclerNet Manager is running. You can even run EclerNet Manager in minimized and protected mode so that the system user sees and manages UCPs only when a single computer acts as web server and web client.

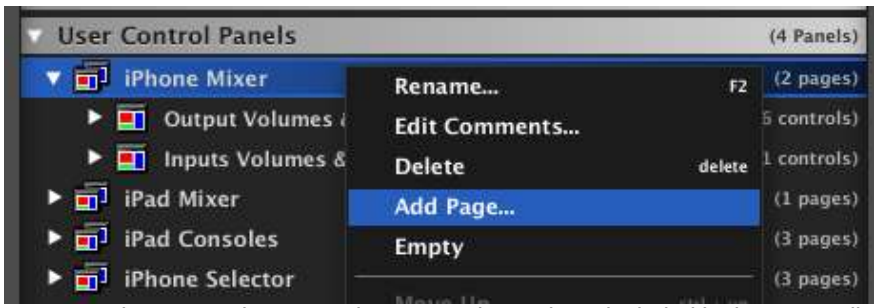
Different web clients can simultaneously load different UCPs and operate the project at the same time, each one controlling a part of the system.

9.2. Creating UCPs

Important: Before initiating any UCP creation or editing operation on existing UCPs, please ensure that EclerNet Manager is in Design mode, not in Deploy mode. Deploy mode should be used later with UCPs that are already created when you want to enable the EclerNet Manager web server mode and its management from web clients.

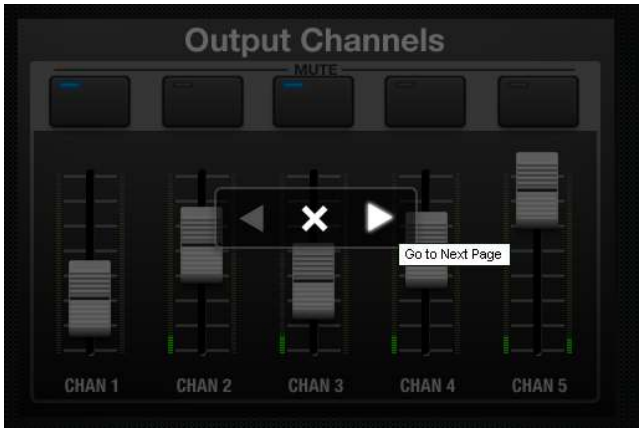
To create a new UCP, you must open the context menu (right mouse button) on the **User Control Panels** folder in the Project Explorer window and select **Add Panel**.

Each UCP must have at least one page including the desired user controls:



In the example, two pages ("Output Volumes" and "Inputs Volumes") are included in the UCP called "iPhone Mixer"

If a panel has more than one page, you can scroll the pages from a remote device (web client) using the cursor arrows that appear when you double click on an empty space of the screen or by clicking and dragging horizontally on the screen ("drag & drop") with the mouse, or with your finger on a touch screen if the device has one (iPhone, iPad, tablet, etc..).

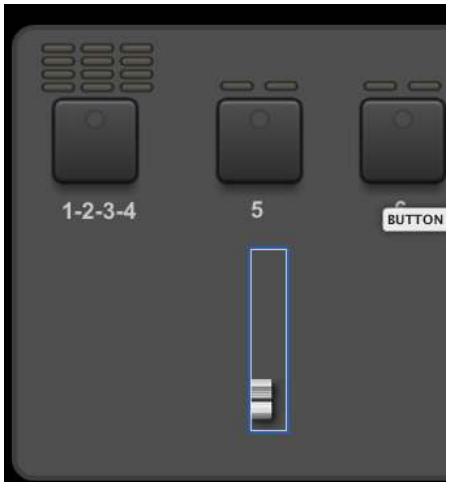


*Double-clicking on a empty space of the screen shows the left and right arrow keys and the **X** symbol which is used to return to the root display of the available project panels (same function as the **ESC** key)*

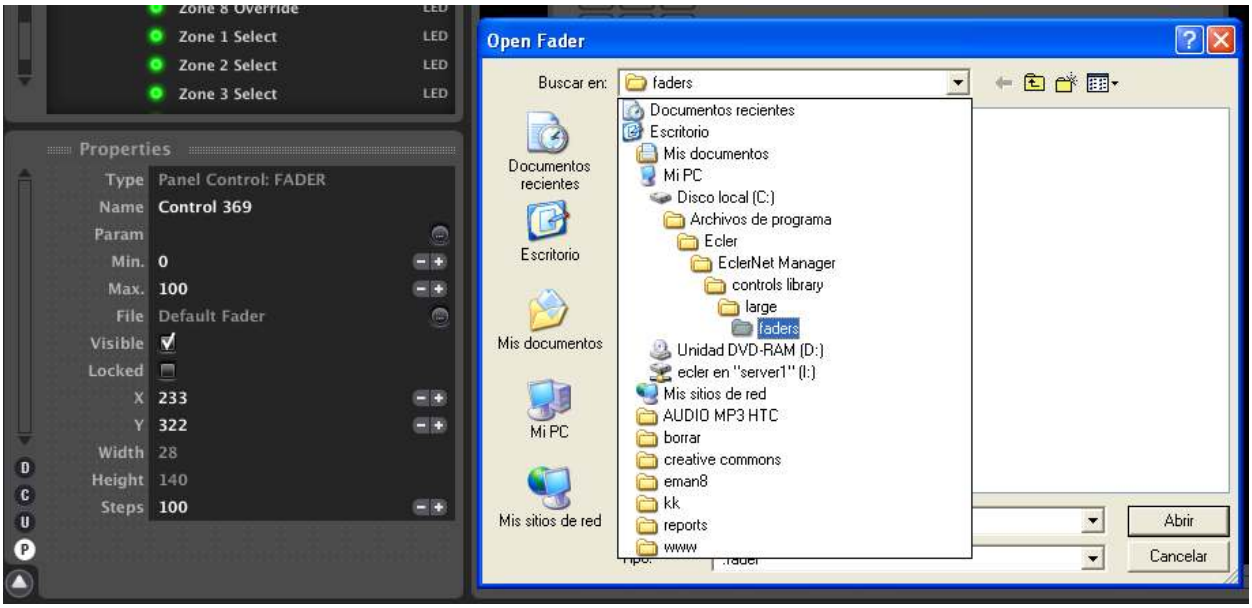
This sequence shows a shift from "Output channels" page to "Input channels" page.

To add a control to a page, click with the right mouse button and select the type of control to add from the drop down list:

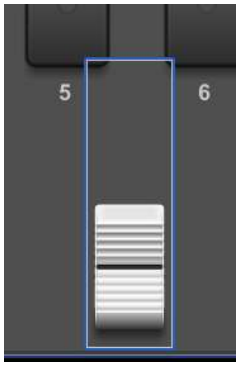
The control will be inserted in the page with a "standard" look, as in this example of volume slider or standard fader:



Once done, you can modify any of its functional and graphic properties, as the minimum and maximum values its performance range can reach (minimum and maximum volume values for a fader or rotary knob), make it visible or hidden, give him a fixed position on screen ("locked"), select the course of its steps (the available course when the fader is raised or lowered, etc.).
Click on the P round icon in the Project Explorer Helper (the window located under the Project Explorer) to display a control's properties.
One of these properties is the visual aspect that you choose for each control. You can replace its "standard" look with one of those available in the library that is installed by default with EclerNet Manager (by clicking ***File*** and selecting the ***controls library*** folder):

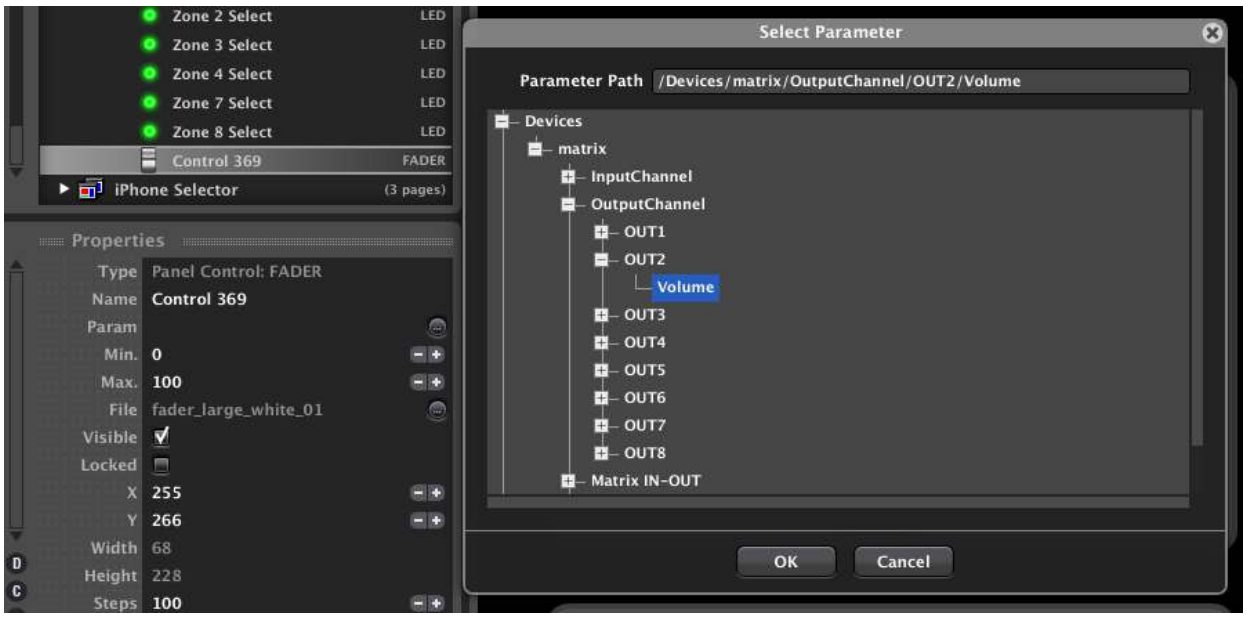


In this example, the standard look of a fader is replaced with a white larger one:



9.3. Functions assignment in the UCP

When controls are placed on the surface of the page, you need to assign them a parameter and a hardware unit to remotely control. To do this, select one of the controls and in the properties window click on the **Param** property:



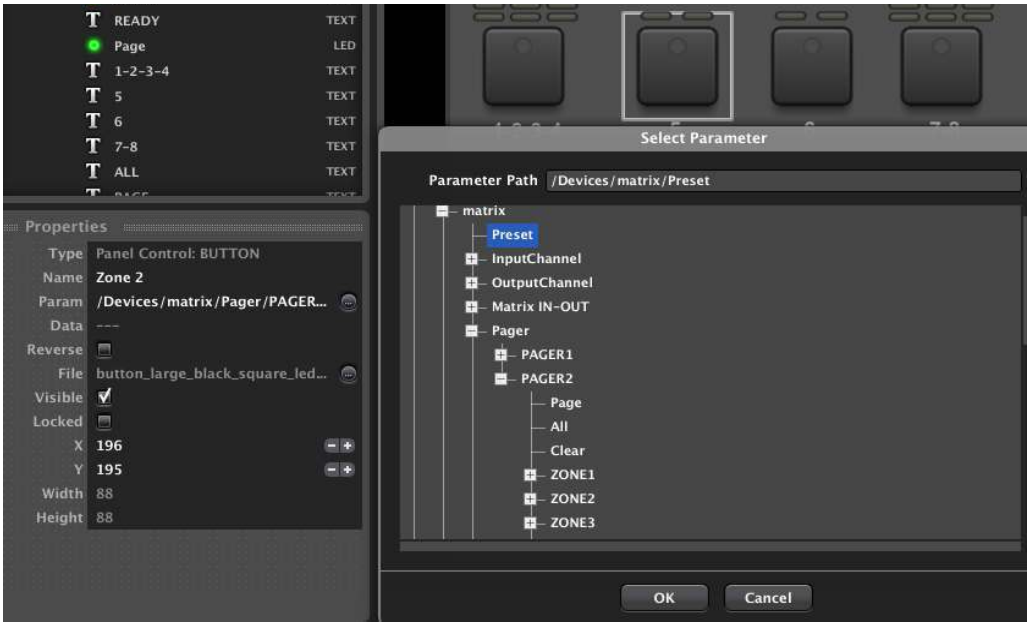
Then a browser window (Select Parameter) opens to select a hardware unit of the project and, within it, a parameter to control. Continuing the example above, the fader that is now displayed with its new appearance (large, white) will control OUT2 volume in a device called "matrix" (in this case a MIMO88).

Selectable hardware devices are all MIMO88s, NZAs or NPAs that were previously included in the project. Thus, a single UCP can have a global control over all hardware devices of the installation (inputs volume and mute, outputs and/or groups of inputs or outputs, presets recall, sending messages to destination areas, etc..), so that the user manages the installation as a single global entity from a single control panel, without taking care of the number, the location and the connection of hardware units that are really working.

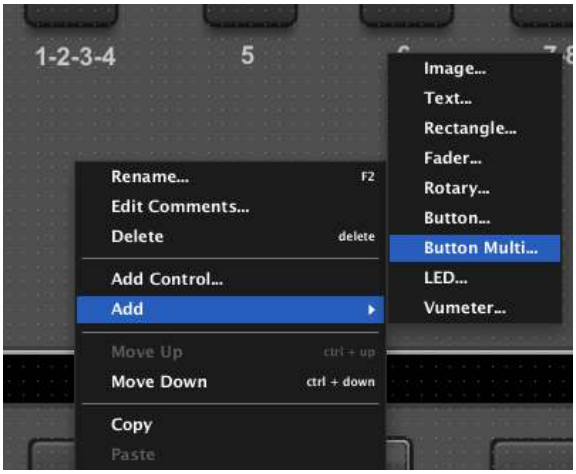
In the following example we see a project that includes 5 MIMO88 units, called **matrix**, **Lecture th. #1**, **Lecture th. #2**, **EVAC SYSTEM** and **OUTDOOR areas**, that might have some of their parameters linked to virtual controls in our UCPs:

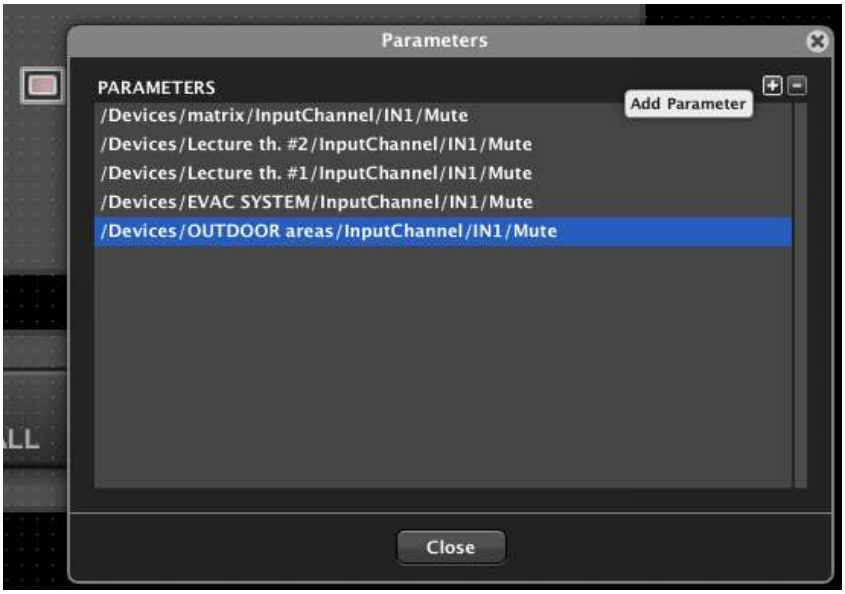
In this case, for example, we could create an UCP with a page that contains multiple faders arranged side by side, as in a live mixer, and assign these faders to control inputs/outputs volumes in the MIMO88 units. The remote user can consider and use the system as a single large mixer or audio matrix, when 5 MIMO88 units are in fact working, not a single large matrix hardware.

When you select a control and click on **Param** property to set its function in the project, the window displays only the parameters that are compatible with this control. For example, the options for a button will be mute, presets recall, paging function, etc., but there's no volume option as a standard button can only have ON or OFF values (100 or 0), not all the range of values between 0 and 100 that a volume control needs.

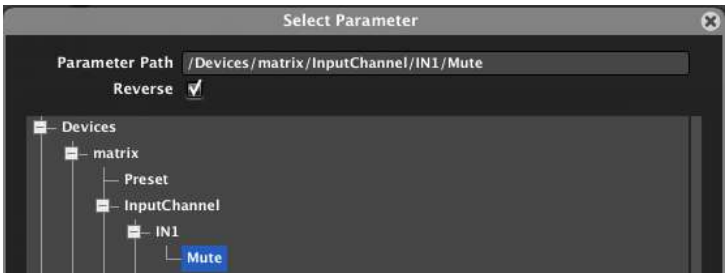


There is a special type of button called *Button Multi* that can operate simultaneously several controls of one or more hardware devices with a single keystroke in a UCP. The following example shows a button of this type that has been programmed to function as a MUTE for input channel #1 in the 5 MIMO88 units of the project. Pressing this button in our UCP is equivalent to press the channel #1 mute control on the 5 MIMO88 of the system. Each time you press the "+" symbol (Add Parameter) in the upper right corner of the **Param** selection window, you can add a parameter to the list of simultaneous functions managed by the control in the UCP.

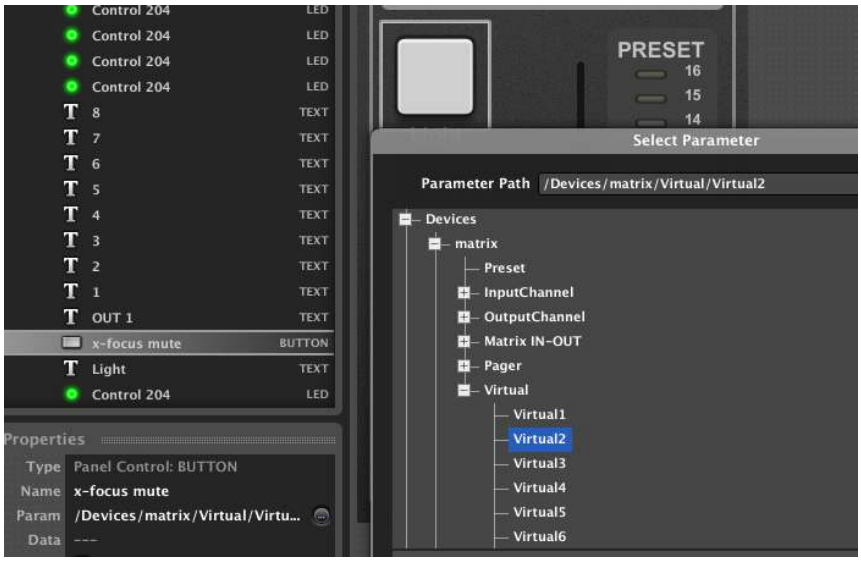




When such a button activates MUTEs, as each of these MUTEs features a Direct/Reverse setting, this type of UCP button can simultaneously activate a MUTE control and deactivate another one:



Another option for a button-type control is to be linked to a "Virtual" control rather than to an existing real control of a hardware unit like a MUTE. A "Virtual" control is not associated with any specific function of a project hardware unit:

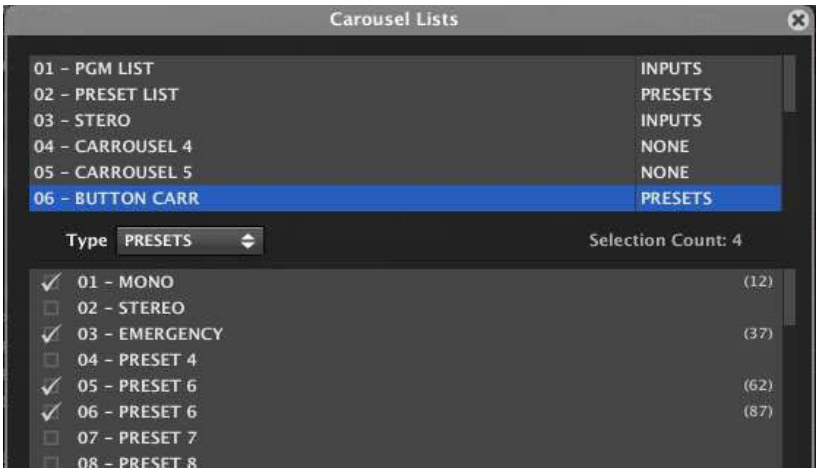


This virtual control can then be used as input for a project event:

Thus, a UCP button could be used for example to activate a MIMO88's GPO or as a compound digital event input, a type of event that uses Boolean logic operators (AND, OR, NOR, XOR, etc..) to trigger an action depending on the status of various inputs. For example, an event of this type could be "if the GPI #1 of the MIMO88 named OUTDOOR AREAS is closed (AND) a specific UCP button is activated, the *Emergency* Preset should be recalled in this MIMO88 unit".
Another possible use of a virtual control (a rotary knob in this case) is to operate as a selector in a carousel list of inputs or Presets. Thus, an UCP will have the same functions as the selector of a WPTOUCH hardware control:

The virtual selector from the previous image, created in the REMOTES section of a MIMO88, can now be remotely controlled from a UCP:

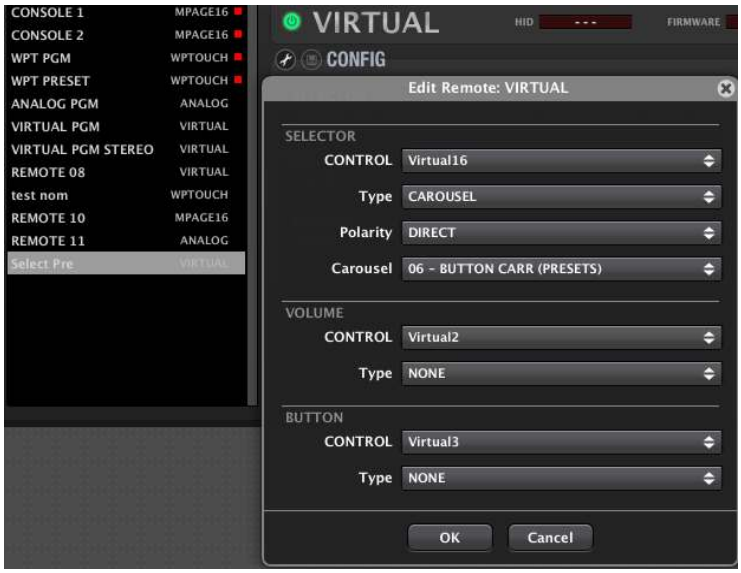
It is also possible to create a UCP virtual selector that is not a rotary control but a series of buttons, each being assigned to a carousel list. In the following example, we see a carousel list of 4 items (Presets in this case). The right column has a number of discrete values which are those that each selection button must communicate when it is pressed to point to the corresponding item in the carousel list:


Carousel Lists
01 – PGM LIST INPUTS
02 – PRESET LIST PRESETS
03 – STERO INPUTS
04 – CARROUSEL 4 NONE
05 – CARROUSEL 5 NONE
06 – BUTTON CARR PRESETS
Type PRESETS
Selection Count: 4
01 – MONO (12)
02 – STEREO
03 – EMERGENCY (37)
04 – PRESET 4
05 – PRESET 6 (62)
06 – PRESET 6 (87)
07 – PRESET 7
08 – PRESET 8

We will have therefore to include 4 buttons in our UCP, with the following control information:

- Key 1: select Preset 1, value 12
- Key 2: select Preset 3, value 37
- Key 3: select Preset 6, value 62
- Key 4: select Preset 7, value 87

In our example, each one of these buttons has to operate the virtual control #16, which is the one we selected as control for our virtual selector in the REMOTES section:

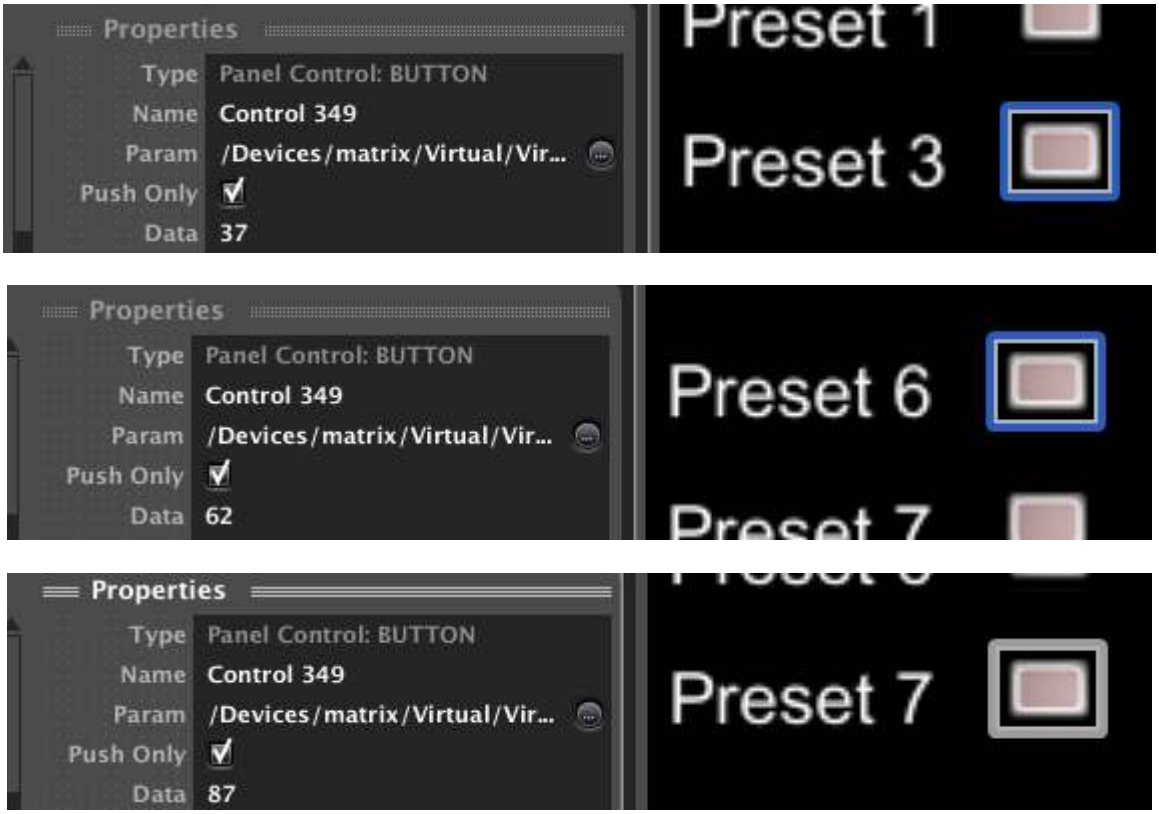


When you press one of these buttons, the virtual control #16 should take the corresponding value among the 4 ones in the table above, value 12 for the first button, value 37 for the second button, and so on. To enable this function for each button, you must follow the following steps (for the previous example):

Select the virtual control #16 for **Param** in the Properties
Check the **Push Only** (*) checkbox
Enter the corresponding value (12, 37, 62 or 87) in the **Data** field

(*) A standard button always sends a value of 100 when pressed and 0 when released, an ideal behavior to recall a specific preset or activate a MUTE. When it's necessary to send a single specific value when pressing the button and nothing when releasing it, as it is the case with this Presets selector, the Only Push checkbox should be checked.

The settings for each button could therefore be:



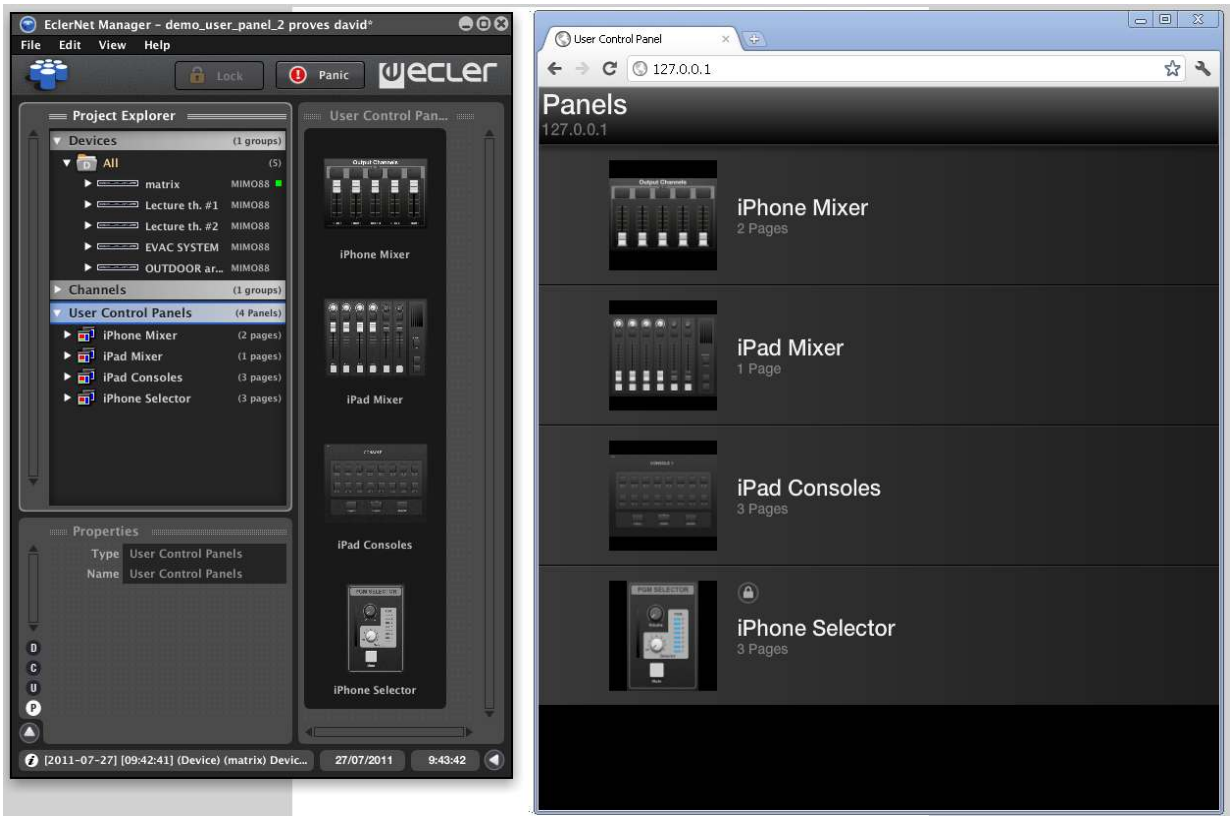
LED indicators can also be associated with virtual controls and you can define the ***Data*** value such controls should have for the LED to light up.

In the following example the virtual control #16 is associated with two LED indicators, lighting the first one when the control takes the value 62 and the second when the virtual control #16 is equal to 87. In both cases, the value 62 or 87 of the Data field has been manually entered:

Please note that when a LED is linked to a parameter that can only take two values, 0 or 100, off or on, the Data field is unavailable because it's not possible to freely assign a specific value to light the LED. In the following example this happens when you link a LED to a MUTE function, which can only have two possible values:

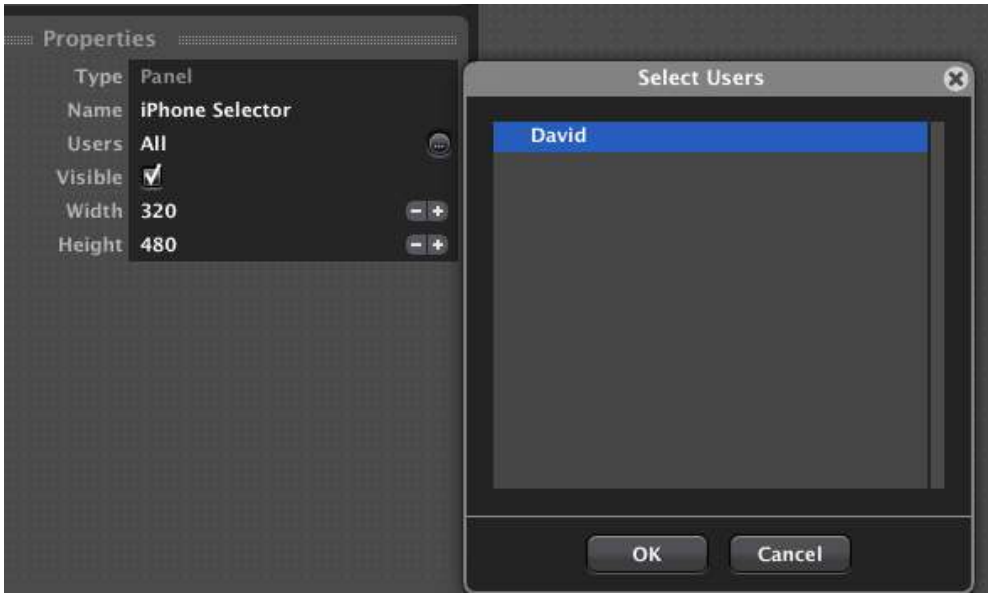
9.4. Management of UCP from remote devices

Fundamentally, any remote device working as a web client (computer, tablet, smartphone, etc..) and pointing with a web browser to the IP address of the web server computer (which runs the EclerNet Manager application with the installation project) will display the list of available UCPs in the project. The following example shows an EclerNet Manager project containing 4 UCPs (left image) and how they are displayed by default as a list in the remote browser window, here with Google Chrome (right image).

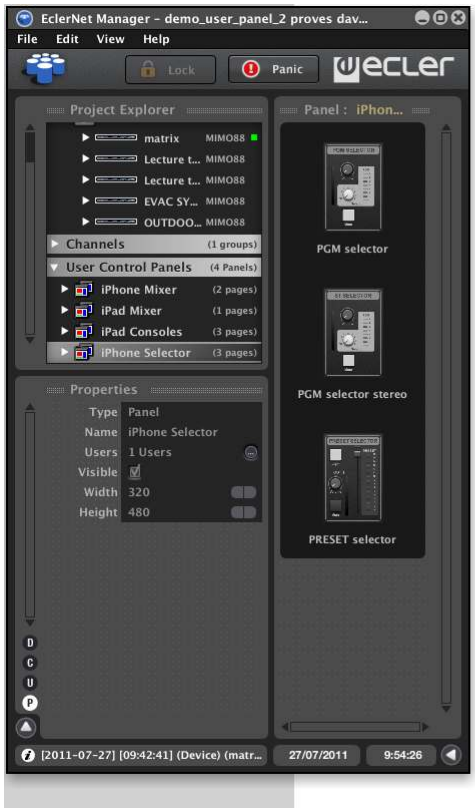


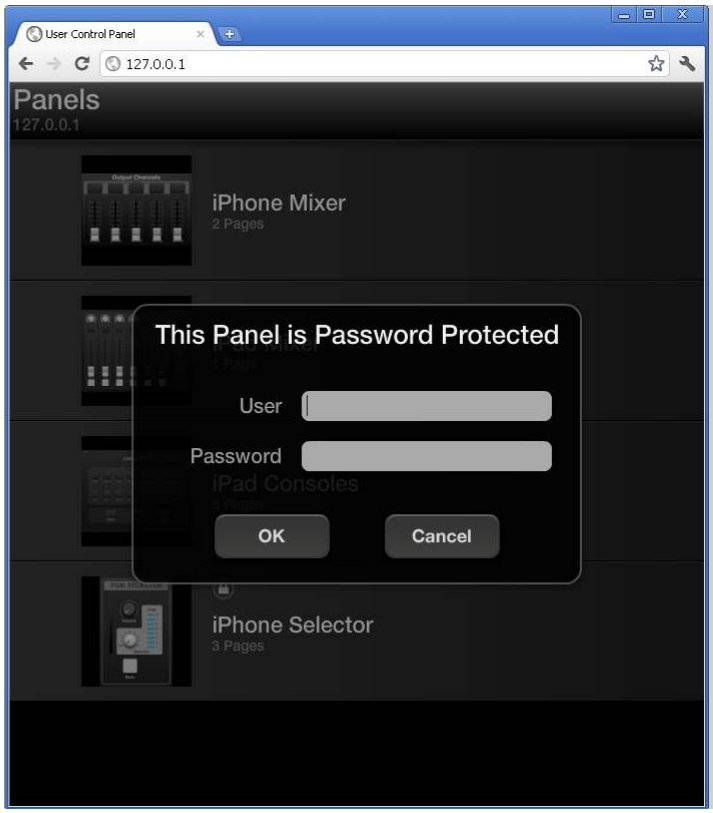
Clicking on one of them will open the first page of the panel. The next pages can be obtain with the arrow keys or by clicking and dragging horizontally:

By default, UCPs are freely accessible from any remote client (**Users** parameter setting is "All" for these panels). You can also define a specific list of system users who can access each panel, by clicking on the **Users** parameter and selecting the user accounts (existing in the project) you want to include:



In this case, to recall a UCP, you must enter the user ID and the password of the account:





The user name and his password should have been previously defined when creating the user accounts of the project:

Personal computers that use a Web browser for remote access to the UCPs should always use the latest available version for the browser and its Adobe Flash® graphics technology support.

Apple® devices like iPhone and iPad need to install a free application to be compatible with EclerNet Manager UCPs, since these ones use Adobe Flash® graphics technology. The free application can be downloaded here:
http://itunes.apple.com/us/app/ecler-ucp/id454955838?l=es&ls=1&mt=8

Devices based on Android® operating system can also use a free application that streamlines the remote operation of the UCPs compared to its implementation through a conventional web browser:
https://market.android.com/details?id=air.com.ecler.ucp&feature=search_result

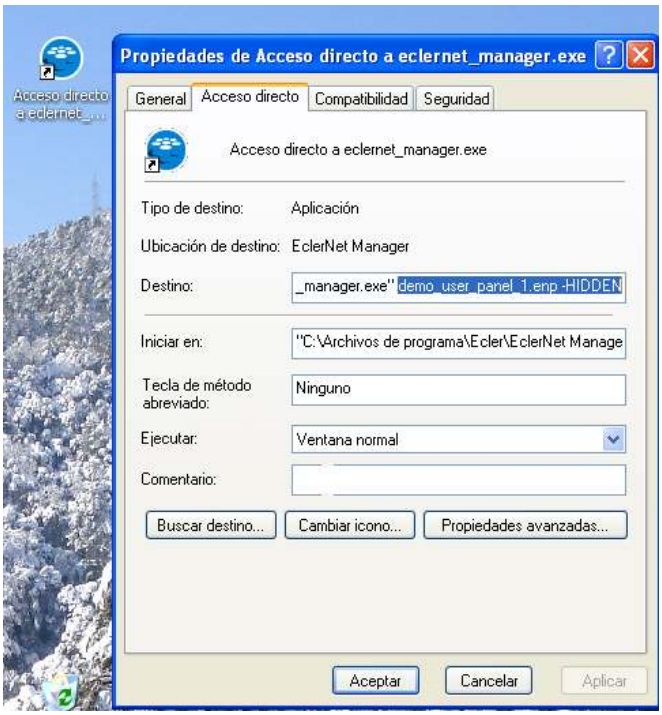
9.5. EclerNet Manager "hidden" mode and direct access to projects and UCPs

EclerNet Manager can directly load a project at startup, and even run in "hidden" or minimized mode, employing some command line parameters. These parameters can be included in the properties of a shortcut to the application or in a batch file execution, and can even run from the Windows startup, so that for example the following sequence automatically runs without user intervention when the computer starts:

- EclerNet Manager starts
- EclerNet Manager loads a particular project specified in the command line
- EclerNet Manager synchronizes the project with the installation hardware devices without prompting the user (always chooses the "Send Status to Physical Device" option)
- EclerNet Manager is permanently minimized, displaying a blue round icon in the Windows notification area (bottom right corner of the screen)

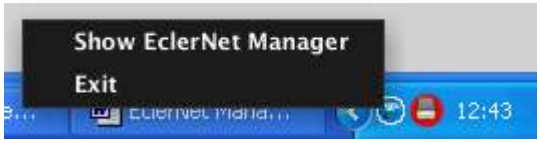
The previous example is an ideal working mode for a daily and automatic use of the system. Hardware remote users through UCPs do not know what lies behind the control application they have on their respective screens, and don't have to worry about running any additional software. It is also a very good practice for security reasons (to avoid unwanted changes of the project) and especially in those cases where a single computer operates as a webserver, running EclerNet Manager, and as a web client, running UCPs from a web browser.

The **project name** and the **–HIDDEN** parameter must be used in the command line to work with EclerNet Manager in this mode. In the following example a direct access to EclerNet Manager has been edited, adding the **demo_user_panel_1.enp** project and the **–HIDDEN** parameter to your command line:



Running this shortcut will start EclerNet Manager in minimized mode, showing the blue round icon in the Windows notification area:

If the project has password protection, a password will be required to maximize the application by pressing the right mouse button on the icon and selecting "Show EclerNet Manager":



A batch file is a simple text file containing a series of lines with Windows commands and saved with the **.BAT** extension.
A batch file for EclerNet Manager has a very simple syntax if both project and batch file are located in the same folder as the EclerNet Manager executable file or **eclernet_manager.exe** (usually C: \ Program Files \ Ecler ...). If you want to run the batch file from another location (for example, from the Windows desktop), the easiest way to do this is to create a shortcut pointing to this batch.

If the file name of the project file or UCP panel to recall contains blanks, you'll need to insert it within quotes in the command line. To avoid potential problems in this names, it is recommended to replace blanks with underscore character. Example: **example_project** instead of **example project**

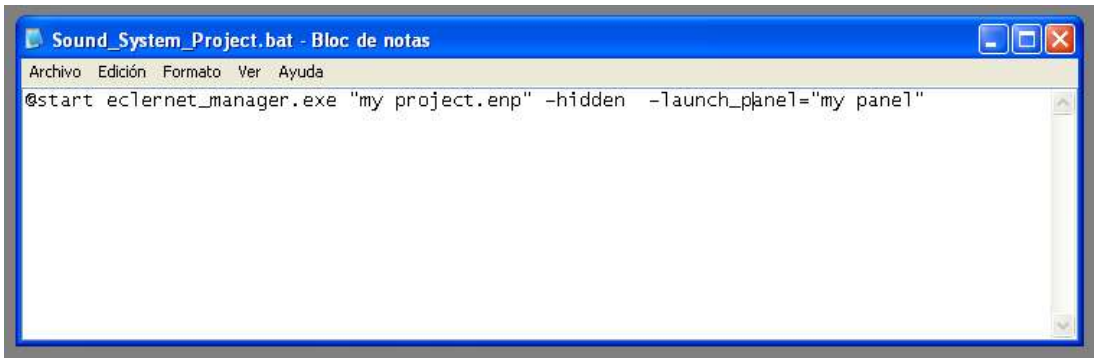
Here are some examples of possible commands to be included in batch files:

- Loading a project named ***my project.enp*** in normal operation mode (EclerNet Manager application will be visible, not minimized):
  @start eclernet_manager.exe "my project.enp"

- Loading a project named ***my project.enp*** in minimized operation mode (EclerNet Manager is not visible, and appears as a blue round icon in the Windows notification area, in the lower right corner of the screen):
  @start eclernet_manager.exe "my project.enp" -hidden

- Loading a project named ***my project.enp*** in minimized operation mode and automatically displaying a Control Panel (UCP) called ***my panel*** with the default Internet browser for your computer. This example is valid when both EclerNet Manager and the internet browser with UCP are running on the same computer:
  @start eclernet_manager.exe "my project.enp" –hidden -launch_panel="my panel"

And this is what a batch file looks like as in the previous example (created with Windows Notepad):


Sound_System_Project.bat - Bloc de notas
Archivo Edición Formato Ver Ayuda
@start eclernet_manager.exe "my project.enp" -hidden -launch_panel="my panel"

If the project file, the batch file and the EclerNet Manager executable are located in different folders, the syntax becomes more complex.

The following examples assume that the EclerNet Manager application has been installed in the default folder (**C:\program files\Ecler\EclerNet Manager\eclernet_manager.exe**) and the project file in a folder called **C:\program files\Ecler\EclerNet Manager\projects**.

Do not forget to put names containing blanks in quotes. By using quotation marks, the Windows **START** command can interpret the quoted text as the title of the window, add any title (or any character between

the quotes, as in the examples) to prevent this effect. See any batch file creation manual if you need more assistance in this regard.

These are examples for batch files that run a project named ***my project.enp*** using the full pathname of the files involved:

- Loading a project named ***my project.enp*** in normal operation mode (EclerNet Manager application will be visible, not minimized):
  @start "" "C:\program files\Ecler\EclerNet Manager\eclernet_manager.exe" "C:\program files\Ecler\EclerNet Manager\projects\my project.enp"

- Loading a project named ***my project.enp*** in minimized operation mode (EclerNet Manager is not visible, and appears as a blue round icon in the Windows notification area, in the lower right corner of the screen):
  @start "" "C:\program files\Ecler\EclerNet Manager\eclernet_manager.exe" "C:\program files\Ecler\EclerNet Manager\projects\my project.enp" –hidden

- Loading a project called ***my project.enp*** in minimized operation mode and automatically displaying a Control Panel (UCP) named ***my panel*** with the default Internet browser for your computer. This example is valid when both EclerNet Manager and the internet browser with UCP are running on the same computer:
  @start "" "C:\program files\Ecler\EclerNet Manager\eclernet_manager.exe" "C:\program files\Ecler\EclerNet Manager\projects\my project.enp" –hidden -launch_panel="my panel"

If you need to directly recall a control panel or UCP (that does not appear by default in the initial list of available UCPs) from a client PC (a different PC from the one running EclerNet Manager), you can used a batch file or access the address stored in the browser Favorites or Bookmarks. Here are both methods:

- Example using a batch file on a client PC to directly call a UCP panel named **my panel** with the default Internet browser used on the PC. The example assumes that the IP address of the PC running EclerNet Manager (the web server) is **10.11.0.23**:
  @start http://10.11.0.23/go.html?panel=my%%20panel

*The syntax is very accurate: instead of using quotation marks, if the UCP name contains blanks, replace those blanks with the **%%20** characters (twice **%** followed by **20**).*

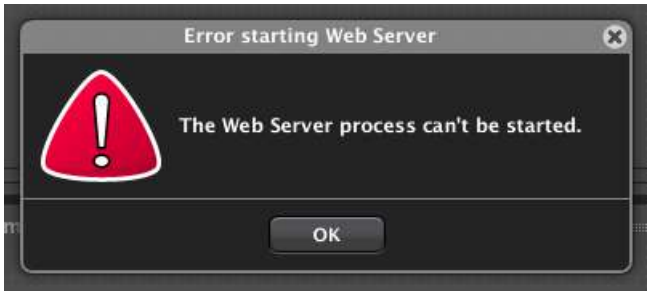
- You can get the same result by typing the address below directly into the browser address bar. You can also include it in your browser Favorites or Bookmarks to easily retrieve the UPC in the future:
  http://10.11.0.23/go.html?panel=my%%20panel

  The syntax is very accurate: instead of using quotation marks, if the UCP name contains blanks, replace those blanks with the **%%20** characters (twice **%** followed by **20**).

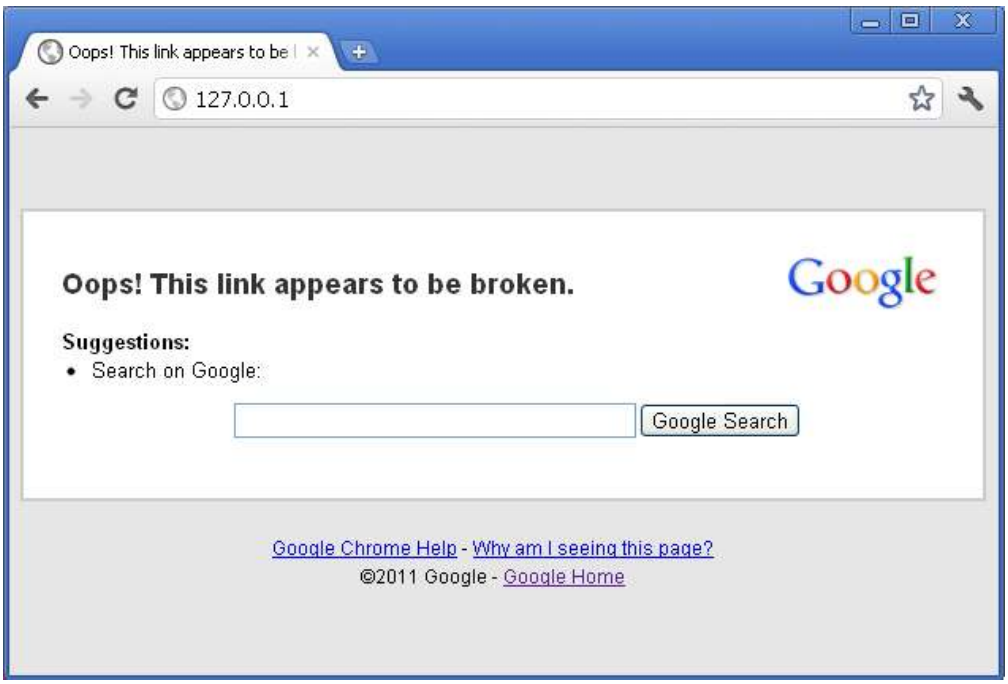
9.6. Error Message from the web server service

When running the EclerNet Manager application, it automatically tries to start the web server service in the background, thus allowing client devices to retrieve and manage UCPs that have been included in a project. Sometimes EclerNet Manager can't launch the web server service, basically when another web server type service (Skype, Apache, etc..) Is running and/or the **TCP 80** port is occupied.

In such cases, the following warning message is displayed:



If you click on **OK** EclerNet Manager will run normally, but the web server service is not enabled, making it impossible to connect from client devices and use the project UCPs. Clients will display error messages like this one if you try to connect to the web server:


Oops! This link appears to be
127.0.0.1
Oops! This link appears to be broken.
Google
Suggestions:
Search on Google:
Google Search
Google Chrome Help - Why am I seeing this page?
©2011 Google - Google Home

By definition, a single computer cannot run two web server services occupying simultaneously the same TCP port.